Public Health Reports

Vol. 55 • FEBRUARY 2, 1940 • *No. 5*

COMMUNITY ECONOMIC STATUS AND THE DENTAL PROBLEM OF SCHOOL CHILDREN[1]

By HENRY KLEIN, *Dental Officer*, and CARROLL E. PALMER, *Passed Assistant Surgeon, United States Public Health Service*

INTRODUCTION

Factors described broadly by the term "socio-economic" affect to a marked extent the public health approach to many diseases. The application of findings derived from a study of these factors in the diarrheal conditions of infancy, in tuberculosis, hookworm, and other conditions has contributed significantly to the design of practical programs directed towards the reduction of morbidity and mortality from these diseases. In the light of these considerations further delineation of the importance of the socio-economic variables in the oral pathologies is clearly justified.

The present paper is concerned with a preliminary study of the influence of *community* socio-economic condition on the incidence of dental caries, the receipt of dental care, tooth loss, and other measurable aspects of the dental problem among children in the community. The findings are based on dental examinations of nearly a quarter of a million white elementary school children, all living within the relatively narrow geographic confines of the State of New Jersey and in communities which are widely differentiated with respect to economic status.

The analysis appears to show that the economic status of these communities bears little relationship to the tendency of the children to experience attack by caries in the permanent teeth. On the other hand, the study clearly reveals that intimate relationships exist between economic status, the volume of dental care dispensed, and the total number of permanent teeth extracted and indicated for extraction. The implications of these findings are discussed. The facts at hand lead to the conclusion that the number of permanent teeth extracted and indicated for extraction, although supplying a rough measure of the level of dental care dispensed, cannot be viewed in the light of present knowledge as a precise measure of the efficacy or volume of dental care.

[1] From the Division of Public Health Methods, National Institute of Health. Presented at the meeting of the American Public Health Association, October 20, 1939.

MATERIAL AND METHODS

Most of the basic data for the present analysis were derived from a recent Public Health Bulletin (*1*) which reported the results of a Nation-wide dental survey conducted by the American Dental Association and the United States Public Health Service. Among other items, the Bulletin contains tabulations of the following four observations [2] on the permanent teeth of children of each of 40 urban communities of New Jersey: (1) The number of carious defects; (2) the number of filled teeth; (3) the number of extracted teeth; and (4) the number of teeth for which extraction was indicated.

In the published tabulations these basic observations are expressed as rates, that is, the number per 100 children, and separate listings are given for boys and girls and for the three age groups, 6–8, 9–11, and 12–14. In addition to these four descriptive items, two others were obtained for the present study by making certain combinations of these basic tabulations. The first of these additional items, obtained by adding the rates for extracted permanent teeth and extractions indicated, was calculated for the purpose of obtaining community-specific tooth mortality or "odontothanatotic" rates.[3]

The second derived value was obtained by adding all four of the original rates; that is, the number of carious defects, the number of filled teeth, the number of extracted teeth, and the number of extractions indicated. The value resulting from this summation, here designated *d*MF, was derived in order to approach a reconstitution of the caries experience in the permanent teeth of the children.[4]

It is necessary to consider briefly several general and specific limitations of these data. In this connection it is desirable to note that the observations made in New Jersey were recorded by a number of

[2] The observations are designated specifically in the Bulletin as follows: (1) Caries, permanent teeth, number per 100 children; (2) filled permanent teeth, number per 100 children; (3) extracted permanent teeth, number per 100 children; (4) extractions indicated, permanent teeth, number per 100 children.

[3] In order to afford a term for designating teeth extracted and those indicated for extraction, Wisan (*2*) has suggested "lost permanent teeth." Since the word "lost" would convey the meaning of absence from the mouth, this term seems somewhat less inclusive of the meaning desired than others which may be developed. Since teeth already extracted and those requiring extraction are made up almost entirely by teeth which have died, the expression "tooth mortality" would at first glance appear suitable (*3*). However, this latter term has been interpreted as referring to deaths of persons from dental pathology. This is understandable since the word "mortality," through long usage in demographic studies, has come to mean almost exclusively deaths of persons. These considerations and the relative importance of extractions and indicated extractions in the dental problem of children would seem to call for the introduction of a term which would convey clearly the meaning intended. It is suggested, therefore, that the word "odontothanatosis" from the Greek "odonto" (tooth) and "thanatos" (execution or death) serve as the definitive term to designate teeth extracted and indicated for extraction.

[4] The total number of permanent teeth observed to be affected by past and present caries at a particular examination is constituted by accumulations of all the caries episodes which occurred each year from the time of eruption of the permanent teeth until the time of examination. Counts of the number of permanent teeth with active caries, with fillings, plus those extracted from the mouth or indicated for extraction presumably because of caries, provide information which defines in substance the involvement of a particular mouth or group of mouths by past and present caries attack. Such counts of caries experience make available a rough quantitative measure of the intrinsic tendency of a particular person or a group of persons to experience attack by dental caries.

different dentists. Accordingly, variations in interpretations among the examiners undoubtedly existed. The item most markedly influenced probably is the count of the number of carious defects in the permanent teeth, since it is known that some of the examiners included pits and fissures presumptively as caries while others did not do so.[5] Observations on the number of filled and extracted permanent teeth are probably only slightly affected by variations arising from subjective interpretation. On the other hand, subjective decisions very likely entered into the recording of permanent teeth for which extraction was indicated (*4*).

Particular consideration should be given to the value designated as the *d*MF rate. As shown in previous communications (*5*, *6*, *7*) and elsewhere (*8*, *9*, *10*), a reconstitution of the caries experience in the permanent teeth of children may be accomplished with a fair degree of precision by totaling the *mutually exclusive* numbers of carious teeth (irrespective of the number of defects per tooth), the number of filled teeth, and the number of extracted teeth plus those indicated for extraction. The summation of these values gives a count of the number of permanent teeth showing evidence of having been attacked by caries; in previous communications this has been called the count of DMF teeth (the decayed, missing, and filled permanent teeth). In the material available for the present study the M (missing teeth plus those indicated for extraction) and F (filled teeth) portions of the DMF count can be obtained readily by adding together the mutually exclusive items, extracted teeth plus indicated extractions, and filled teeth. However, the D portion of the count, that is, the number of permanent teeth affected by one or more unfilled carious defects, is not available in the tabulations provided in the Bulletin.[6] It was necessary, therefore, to use instead the counts of carious defects which are provided. As a result a "modified caries experience" or "*d*MF" rate is obtained. Obviously caution is necessary in the use of this rate, but it would appear reasonable to assume that the *d*MF values approximately parallel the actual caries experience (DMF) rates of the children in the communities studied.

The socio-economic status of the urban communities of New Jersey is expressed as the percentage of rented nonfarm homes renting for $50 or more per month. These index values, derived from information given in publications of the Bureau of the Census (*11*), ranged fairly uniformly from a minimum of 2 to a maximum of just over 70 percent.

---

[5] Subsequent to the collection of the original data, questionnaires were sent out to the 12 dentists who made the examinations in New Jersey. Nine returned answers to the following specific inquiry: "In addition to objective signs of caries were pits and fissures counted as caries? Yes ..... No. ....." Six reported in the affirmative and three in the negative. See p. 4 of reference (*1*).

[6] Teeth with evidence of caries experience have been designated by various terms. Salzmann (*8*) has used the expression "exteeth" and Hollander and Dunning (*9*) have used "affected teeth."

The survey, on which Bulletin No. 226 was based, was designed, primarily, with the thought of dental needs in mind. Thus the number of carious defects was set down instead of the number of carious teeth.

In general the communities with high economic indices are affluent residential areas within commuting distance of large metropolitan districts. Many of the communities with low indices are highly industrialized, relatively impoverished, suburban areas adjacent to larger urban centers. Communities having indices in the middle range are in most instances either the larger urban centers or political subdivisions contiguous to these centers. It is clear that the index (the percentage of rented nonfarm homes renting for $50 or more per month) represents an approximate and restricted measure of those complex factors which all together may be taken to constitute socio-economic status. On the other hand, additional knowledge of the New Jersey communities supports the view that this index does serve satisfactorily for present purposes to differentiate the communities in respect to socio-economic condition.

The communities studied (designated by number), the economic indices, and detailed tabulations on the dental conditions of the children are given in the appendix, table 1A.

In order to study the relationship between the economic variable and the dental status of children it has seemed satisfactory to express the character of the relationship primarily in terms of correlation coefficients (Pearsonian r). It is recognized that for the material at hand such coefficients will show only in broad and summary form the consequences of the interplay of a variety of influences. Some of these are apparent; others, though doubtlessly participating in the interplay of factors, are not immediately discernible. That the dental status of the children of these localities may be related to variables other than those identified here is not excluded by the present analysis.

FINDINGS

Community economic status and caries experience.—Correlation coefficients showing the relationship between the index of economic status and the level of caries experience (*d*MF rates) are given in table 1. In order to illustrate other characteristics of the relationship,

TABLE 1.—*Correlation coefficients and their respective standard deviations for the relationship between community economic status and intensity of attack by caries (*dMF*). Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6-8	9-11	12-14
Boys	−0.31±0.16	0.03±0.16	0.15±0.16
Girls	−0.28±0.16	0.14±0.16	0.03±0.16

figure 1 presents the data for girls in the form of three scatter diagrams, one for each age group. This figure also shows the results of fitting straight lines to the data for each age group of children (a similar

diagram for the boys shows essentially the same relationship and is not reproduced here). Although wide fluctuations in the caries experience rates are apparent from community to community, they do not occur systematically with changes in the economic index. As

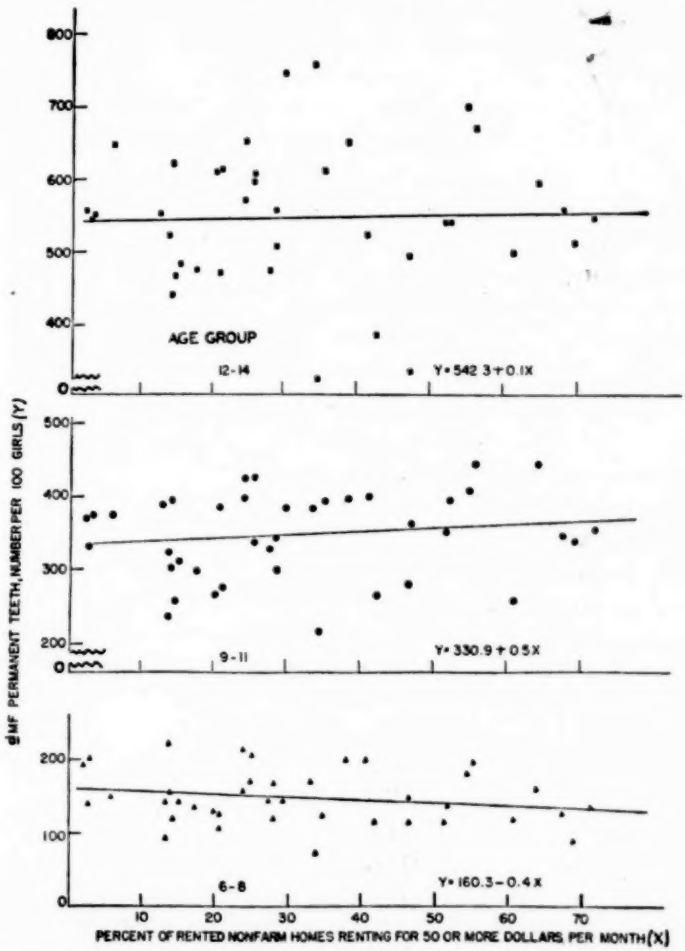

FIGURE 1.—Scatter diagrams and fitted lines illustrating the relationship between community economic status and intensity of attack by caries (*d*MF), for girls 6-8, 9-11, and 12-14 years old. Data derived from observations in 40 urban communities of New Jersey.

may be noted in table 1, the coefficients in general are small, their signs are not consistent for all age groups, and none is statistically significant. Although these findings are based on caries experience rates which are affected by the limitations previously discussed, the analysis appears to show that the tendency of children to experience attack by caries in the permanent teeth (the intensity of attack by caries) is not selective for children living in communities which differ

markedly in economic status.[7] The findings of Cohen (*12*), Greenwald (*13*), Franzen (*14*), and Miller and Crombie (*15*) support this impression.

Community economic status and filled permanent teeth.—The relationship between the number of filled permanent teeth per 100 children and the percentage of rented nonfarm homes renting for $50

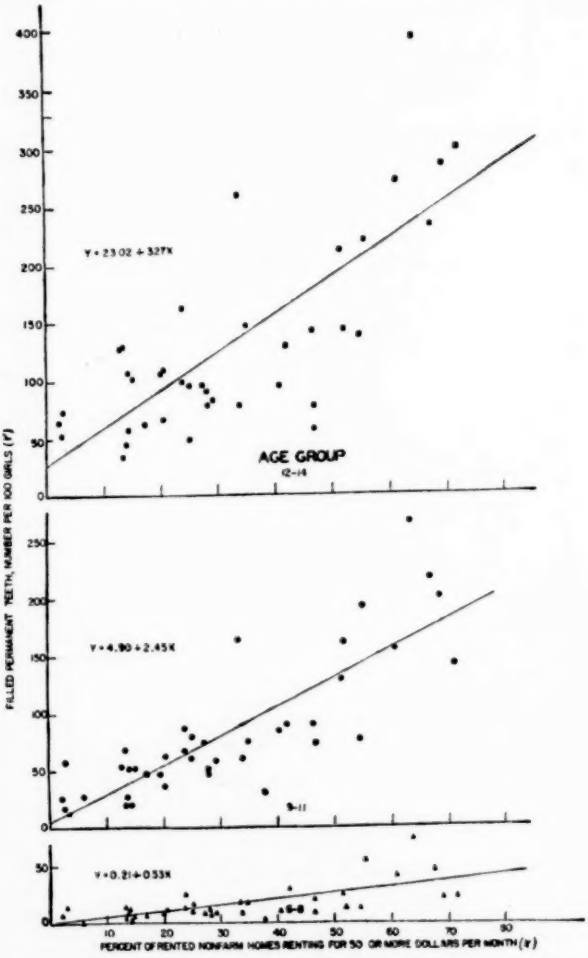

FIGURE 2.—Scatter diagrams and fitted lines illustrating the relationship between community economic status and dental care (filled permanent teeth), for girls 6–8, 9–11, and 12–14 years old. Data derived from observations in 40 urban communities of New Jersey.

or more per month is shown graphically in figure 2 for the girls and the correlation coefficients for these variables are given in table 2 for both sexes. From the spot diagram showing the data for girls and from the coefficients given in table 2, it is evident that the number of

[7] Data available from studies as yet unpublished support the view that secondary *extensions* of caries are considerably reduced in children receiving remedial dental care, that is, in those who may be in better economic circumstances. It should be emphasized that the question under discussion above refers primarily to intrinsic or initial caries experience. This subject of inquiry is clearly distinct from that concerned with secondary extensions of the carious process.

filled teeth is highly correlated with the indices of economic status. All of the coefficients are positive, all are greater than 0.6, and all are statistically significant. In addition to the fact that the coefficients are uniformly high, there is apparent a marked increase in the number of filled teeth with increase in the indices of economic status. For example, in the localities having very low economic indices each 100 girls between the ages of 12 and 14 years have of the order of 50 filled permanent teeth. On the other hand, the number of filled teeth per 100 girls of the same age grouping in the areas having very high economic indices is nearly five times greater. In some respects a consistent and marked relationship between the filled tooth rate and the indices of economic status may appear to constitute an obvious finding.

TABLE 2.—*Correlation coefficients and their respective standard deviations for the relationship between community economic status and dental care (filled permanent teeth). Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6-8	9-11	12-14
Boys	0.63±0.10	0.79±0.06	0.77±0.07
Girls	0.66±0.09	0.81±0.06	0.75±0.07

As such, however, it lends support to the impression that the indices of community economic status used in the present study actually serve to differentiate the several urban areas with respect to ability to utilize available professional dental services. That the economic status of the family affects the variety and volume of dental care received is shown by the investigations of Collins (*16*), Klem (*17*), and Britten (*18*).

Community economic status and indicated extractions.—Table 3 gives the correlation coefficients for the community indices of economic status and the rates expressing the number of permanent teeth remaining in the mouth but for which extraction is indicated. For the younger children, as may be expected, the coefficients are relatively low. For the older age groups, however, it is evident that a high inverse association exists between the two variables under discussion.

TABLE 3.—*Correlation coefficients and their respective standard deviations for the relationship between community economic status and indicated extractions of permanent teeth. Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6-8	9-11	12-14
Boys	−0.34±0.14	−0.71±0.08	−0.67±0.09
Girls	−0.50±0.12	−0.67±0.09	−0.65±0.09

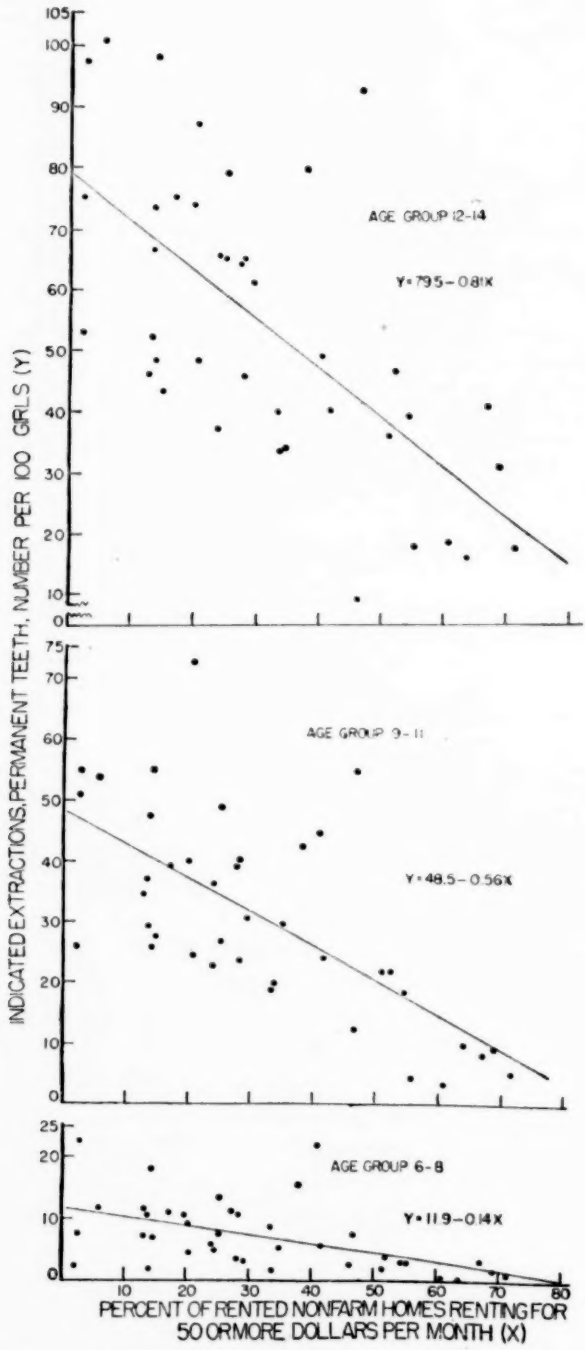

FIGURE 3.—Scatter diagrams and fitted lines illustrating the relationship between community economic status and indicated extractions of permanent teeth, for girls 6-8, 9-11, and 12-14 years old. Data derived from observations in 40 urban communities of New Jersey.

Inspection of the data given in the appendix, table 1A, and presented graphically in figure 3 shows that in communities having very low economic status girls 12–14 years of age have approximately 75 indicated extractions per 100 individuals, while each 100 girls of the same age living in communities having high indices need less than 20 extractions. A similar relationship obtains for boys. Clearly the presence of 75 severely decayed or nonvital permanent teeth for each 100 girls 12–14 years of age must represent a considerable health hazard. The findings presented would indicate that community economic status is intimately and inversely associated with the extent of this problem.[8]

Community economic status and extracted permanent teeth.—The extraction of permanent teeth in children, since this is usually accomplished by the dentist, constitutes a form of dental service which may have an important relationship to the economic status of a community. Table 4, giving the correlation coefficients for these two

TABLE 4.—*Correlation coefficients and their respective standard deviations for the relationship between community economic status and extracted permanent teeth. Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6-8	9-11	12-14
Boys	−0.25±0.16	−0.18±0.16	−0.21±0.15
Girls	−0.37±0.15	−0.37±0.14	−0.41±0.13

variables, suggests that there is a low inverse association between the number of extracted permanent teeth in the children examined and community economic level. Although the evidence which bears directly on this point is not entirely conclusive (the coefficients are low and not statistically significant in every case), it is of considerable interest to note that the general character of the relationship between economic status and this type of dental service is different from the relationship between economic status and dental service in the form of fillings. Thus, with increase in the economic level of the communities there occurs a striking *increase* in the number of permanent teeth filled and a concomitant slight *decrease* in the number of permanent teeth extracted. The finding of a slight decrease in the extracted tooth rate with increase in the value of the economic indices must be integrated with the observation that a large residuum of

[8] It is necessary to recognize that a part of the wide differences in the rates for indicated extractions observed between the areas of high and low economic status may be the result of differences in criteria as to when an extraction is indicated. Thus, a badly decayed tooth in a poorer community might be indicated for extraction, while in a more affluent community the same tooth might be considered as indicated for filling since the greater costs of placing a filling may be more readily undertaken in the more prosperous area.

indicated extractions exists in the mouths of the children of the poorer communities. When the teeth which should be extracted are added to the extractions already accomplished it may be seen, as

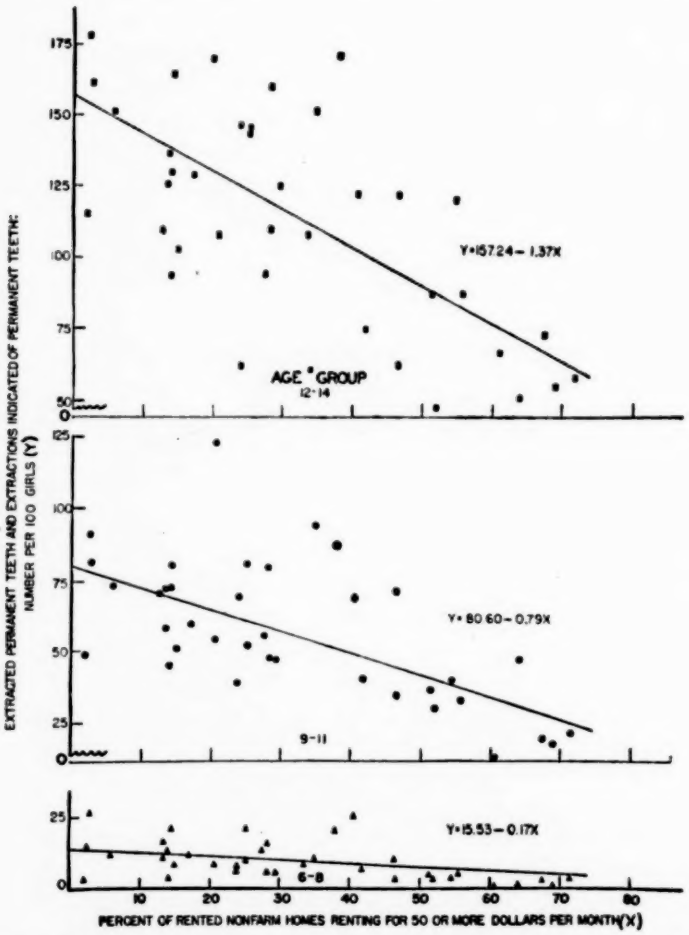

FIGURE 4.—Scatter diagrams and fitted lines illustrating the relationship between community economic status and odontothanatosis, for girls 6–8, 9–11, and 12–14 years old. Data derived from observations in 40 urban communities of New Jersey.

shown by the data for girls given in figure 4, that the odontothanatotic rate decreases sharply with increase in community economic status. Similar findings may be shown for the boys.

DISCUSSION

Because of the limitations in the material available for the present study, and because all the issues involved are not immediately or completely discernible, it is not possible to give a well-rounded discussion of many of the pertinent questions which are suggested by

the analysis presented in the previous sections. On the other hand, it seems desirable to consider in at least a preliminary way one implication which follows from the study. Broadly this concerns the quantitative measurement of the results which may be expected to follow from providing remedial dental service to school children. From the analysis already given it is clear that economic variables markedly influence the provision of such care.

The development of methods of appraising objectively the value of public health procedures has become an important part of public health work. The crude death rate, mortality and morbidity rates for specific diseases, case fatality rates, and so on, have been found of considerable utility in assaying the effectiveness of general and specific health procedures. On the other hand, no clear-cut methods are as yet available for defining objectively and quantitatively the values resulting from the provision of dental health services to large groups of children. That there is need for the development of such techniques in the dental field is well recognized (*2, 3, 4, 19, 20*).

In approaching the problem of measuring the effectiveness of dental health services it is desirable to consider certain characteristic features of the disease for which these services are designed. The carious lesion consists essentially of a disintegration of the enamel surface by a process which is as yet incompletely understood. Usually before detection the lesion has penetrated into the underlying dentine, and if left unattended the pathology continues to penetrate toward and into the nutritive organ of the tooth, the dental pulp, a sequence of events which usually results in loss of vitality of the tooth.[9] Long clinical experience has shown that the progression of these events may be interrupted by the early surgical excision of the carious lesion followed by replacement of the affected area with inert filling materials resistant to disintegration.

Since lack of treatment of the carious lesion usually produces death of the affected teeth, it has been postulated (*2, 3*) that counts, in children, of the number of permanent teeth extracted and the number for which extraction is indicated provide a measure of the degree to which dental care conserves the masticatory apparatus as well as a technique for testing and comparing the efficacy of dental health procedures. Since the tooth death (odontothanatotic) rate appears to hold some promise as a measure of the effectiveness of dental care it becomes desirable to identify the factors which may influence the relationship between odontothanatosis and dental care. On the basis of general considerations it may be admitted at once that intensity of attack by caries constitutes one of these factors.

[9] It is recognized that teeth with nonvital pulps may be successfully treated and maintained in serviceable condition in the mouth by means of pulp canal therapy. The prolonged treatment required to render the root canal and apical areas bacteriologically negative is generally not selected by the patient who in most instances prefers extraction of the tooth.

Thus, because of variations in the intensity of attack by caries, the odontothanatotic rate may vary irrespective of the level of dental care. That wide differences do exist among children of different localities with respect to intensity of attack by caries is indicated in recent publications (*5, 19, 20, 22*).

Another factor which undoubtedly affects the relationship between dental care and odontothanatosis is the length of time between initiation of a carious lesion and its treatment by filling.[10] Clearly the odontothanatotic rate may vary more exactly with respect to when the filling is placed in relation to when the cavity was initiated than with the number, *per se*, of fillings placed. Identification of this factor as a variable in the problem brings into focus an appreciation of the fact that little is known, in a quantitative sense, at the present time of the influence of this variable on the viability of teeth.

Although the data for the present study are deficient in certain respects they perhaps are adequate to provide some insight into the difficulties which must be encountered in any attempt to develop the odontothanatotic rate as an index of the efficacy of dental care. As indicated previously, a first problem in this connection concerns the study of the influence of intensity of attack by caries on the odontothanatotic rate. Table 5 provides information on this point and shows that the correlation coefficients for the relationship are small and statistically without clear-cut significance. However, those for the older age groups indicate that the number of odontothanatotic teeth observed per 100 New Jersey children tends to increase as the community caries experience rates increase. The interpretation of these coefficients must be integrated with those given in table 6 which show the relationship between intensity of attack by caries and dental care in the form of fillings. In these latter data, all the coefficients for the older age groups (9–11 and 12–14) are positive. However, they are clearly not statistically significant.

TABLE 5.—*Correlation coefficients and their respective standard deviations for the relationship between intensity of attack by caries (dMF) and odontothanatosis. Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6–8	9–11	12–14
Boys	0.11±0.17	0.24±0.15	0.13±0.16
Girls	0.32±0.15	0.16±0.16	0.31±0.15

[10] Obviously a tooth which is filled late in the development of a carious lesion is exposed to a greater risk of being rendered nonvital than one in which a cavity is filled early after its initiation. For purposes of precision and clarity the length of time a cavity remains untreated may be designated "cavity years of exposure to unattended caries."

A general interpretation of these two sets of data leads to the impression that an increase in the intensity of attack by caries is accompanied by a slight and perhaps questionable rise in the odontothanatotic and filled tooth rates. Expressed in other terms, the analysis would seem to justify the conclusion that the data at hand provide an opportunity to study the relationship of dental care and odontothanatosis in a situation where the factor, intensity of attack by caries, appears to affect only slightly the volumes of dental care and odontothanatosis.[11] The following study of the relation of dental care and odontothanatosis is undertaken, therefore, without quantitatively integrating into the relationship the slight influence of intensity of attack by caries.

TABLE 6.—*Correlation coefficients and their respective standard deviations for the relationship between intensity of attack by caries (dMF) and dental care (filled permanent teeth). Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6-8	9-11	12-14
Boys	−0.09±0.16	0.20±0.16	0.24±0.15
Girls	−0.04±0.17	0.28±0.15	0.16±0.16

A first step in the study of the relation consists of a derivation of the correlation coefficients for the two observations, filled teeth per 100 children and odontothanatotic teeth per 100 children. These coefficients, given in table 7, reveal that dental care in the form of fillings and odontothanatosis are indeed highly and inversely correlated in the New Jersey communities. It may be noted that all the coefficients are negative and, except for the youngest age group, all are above −0.58 and in every age-sex group the correlation is statistically significant. The high degree of association of the two variables made apparent by this analysis logically leads to an attempt to elucidate further the quantitative aspects of the relationship.

TABLE 7.—*Correlation coefficients and their respective standard deviations for the relationship between dental care (filled permanent teeth) and odontothanatosis. Data derived from observations in 40 urban communities of New Jersey*

Sex	Age group (years)		
	6-8	9-11	12-14
Boys	−0.36±0.15	−0.58±0.11	−0.69±0.09
Girls	−0.47±0.13	−0.65±0.09	−0.67±0.09

[11] It is essential to understand that this, although true for the New Jersey communities, may not hold for other geographic areas.

Since the sequelae of attack by caries are slowly cumulative, the measurement of the changes in the odontothanatotic rate with change in volume of dental care would seem to be most advantageous in the oldest age group examined (12–14 years). Furthermore, it would seem satisfactory to make this analysis for both sexes combined.

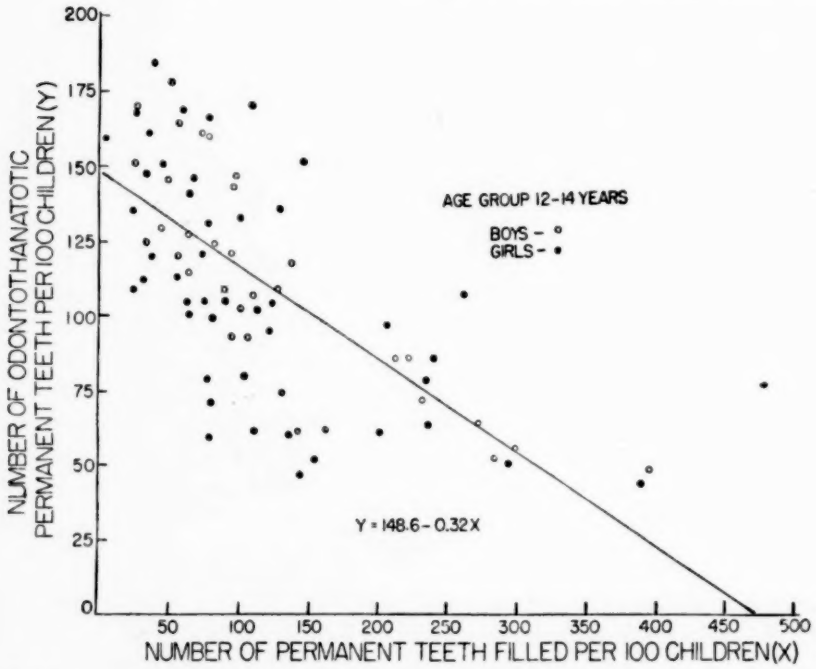

FIGURE 5.—Scatter diagram and fitted line illustrating the relationship between dental care (filled permanent teeth) and odontothanatosis, for 12–14-year-old boys and girls. Data derived from observations in 40 urban communities of New Jersey.

Accordingly the number of filled teeth and the number of odontothanatotic teeth, both expressed as rates per 100 children, were plotted against each other as shown in figure 5. The regression line fitted to these data was found to follow the equation:

$$y=148.6-0.32x$$

Translating this expression into terms of the experience under consideration it may be seen that when, in a given community, there are 50 filled permanent teeth per 100 children there may be expected, on the average, of the order of 130 permanent teeth extracted or indicated for extraction per 100 children. On the other hand, when there are 300 filled permanent teeth per 100 children (12–14 years), an average of somewhat less than 60 teeth affected by odontothanatosis may be expected. The rate of decrease in the number of extractions and indicated extractions per unit increase in numbers of teeth filled (the slope of the regression line) is defined by the regression coefficient

which equals −0.32. Thus, the analysis reveals that the relationship under discussion is such that for each 3 teeth filled a saving, on the average, of 1 tooth (from extraction or indicated extraction) may be expected in the New Jersey children of the age group 12–14 years.

Needless to say, the quantitative derivations given immediately above are rough approximations. They cannot be considered to constitute a precise analysis of the quantitative relation between the two variables. On the other hand, it is necessary to recognize that dental care broadly considered markedly reduces the odontothanatotic process. The data on the New Jersey children, although deficient in many respects, and the analysis given, although open to criticism from many points of view, clearly demonstrate that those communities which provide large volumes of dental care derive great benefits in terms of the conservation of the permanent teeth, while those communities which provide small volumes of dental care pay a penalty measurable in terms of massive crippling of the teeth.

Although it is clear that dental care is a significant factor influencing the odontothanatotic rate it is necessary to emphasize again that many subsidiary variables may affect this relationship. Among these the length of time the carious lesions remain unattended (cavity years of exposure to unattended caries) is perhaps of the greatest significance. The excessive variability in the odontothanatotic rates shown in figure 5 for any given level of numbers of filled teeth is undoubtedly related to this variable. A community showing high levels of odontothanatosis, in spite of high levels of dental care in the form of fillings, may be one in which dental care is not provided in significant amounts until the children develop large and late carious defects. On the other hand a community may show low odontothanatotic rates in spite of intensive caries attack because fillings are placed systematically and early in the development of the carious lesions. This latter consideration also suggests that the development of a *precise* odontothanatotic index for measuring the efficacy of dental care must await further acquisitions in our knowledge of this and other essential variables in the dental problem.

CONCLUSIONS

Analyses of findings derived from a study of about 200,000 children in 40 urban communities of New Jersey lead to a number of rather significant general conclusions regarding the dental status of school children living under fairly representative conditions in the eastern section of the United States. First, although the basic data are not entirely satisfactory, the evidence available seems to indicate that the intrinsic tendency of children to experience attack of the permanent teeth by caries does not depend on the economic

status of the community in which the children live. Second, and the data on which the conclusion is based undoubtedly are sufficiently precise for the purpose, it is clear that the volume of dental care in the form of fillings in the permanent teeth increases markedly with increase in community economic level. Third, and perhaps most definitely, the odontothanatotic rate (the number of permanent teeth extracted and indicated for extraction per 100 children) diminishes as the economic level of the community rises.

A discussion of these findings leads to the conclusion that dental care in the form of fillings in the permanent teeth is highly and inversely correlated with deaths and extractions of teeth. From this consideration it is clear that the odontothanatotic rate may be viewed as a rough measure of the relative amount of dental care received by children of different localities. New Jersey communities having low odontothanatotic rates are, in general, characterized by relatively high levels of dental care, while those having high odontothanatotic rates usually are characterized by low filled-tooth rates. It is pointed out, however, that two other variables—intensity of attack by caries and the interval of time elapsing between the initiation and repair of carious defects—affect the odontothanatotic process. The quantitative significance of these latter factors in the loss of teeth, through devitalization and extraction, requires considerable investigation. It would appear justifiable, therefore, to conclude that present deficiencies in our knowledge make difficult the use of the odontothanatotic rate as a *precise* measure of the efficacy of providing dental care to school children.

REFERENCES

(1) Messner, C. T., Gafafer, W. M., Cady, F. C. and Dean, H. T.: Dental survey of school children, ages 6–14 years, made in 1933–34 in 26 States. Pub. Health Bulletin No. 226. United States Government Printing Office, Washington, D. C. (1936).

(2) Wisan, J. M.: Evaluation of dental programs for children. Am. J. Pub. Health, **28:** 859–862 (1938).

(3) Knutson, J. W., and Klein, Henry: Studies on dental caries. IV. Tooth mortality in elementary school children. Pub. Health Rep., **53:** 1021–1032 (June 24, 1938).

(4) Turner, C. E.: How to improve dental conditions in the United States. Am. J. Pub. Health, **29:** 326–327 (1939).

(5) Klein, Henry, and Palmer, C. E.: Dental caries in American Indian Children. Pub. Health Bulletin No. 239. United States Government Printing Office, Washington, D. C. (1937).

(6) Klein, Henry, Palmer, C. E., and Knutson, J. W.: Studies on dental caries I. Dental status and dental needs of elementary school children. Pub. Health Rep., **53:** 751–765 (May 13, 1938).

(7) Klein, Henry, and Palmer, C. E.: Studies on dental caries. VII. Sex differences in dental caries experience of elementary school children. Pub. Health Rep., **53:** 1685–1690 (September 23, 1938).

(8) Salzmann, J. A.: A study of orthodontic and facial changes and effects on dentition attending the loss of first molars in five hundred adolescents. J. Am. Dent. Assoc., **25:** 892–905 (1938).

(9) Hollander, F., and Dunning, J. M.: A study by age and sex of the incidence of dental caries in over 12,000 persons. J. Dent. Res., **18:** 43–60 (1939).

(10) Bodecker, C. F.: The modified dental caries index. J. Am. Dent. Assoc., **26:** 1453–1460 (1939).

(11) Fifteenth census of the United States, 1930. Population. Volume VI. Families. Reports by States giving statistics for counties, cities and other urban places. United States Government Printing Office, Washington, D. C. (1933).
(12) Cohen, J. T.: A statistical study of caries in the deciduous and permanent teeth of children. J. Am. Dent. Assoc., **23:** 312–325 (1936).
(13) Greenwald, R. C.: Effect of social and economic status upon dental caries. J. Am. Dent. Assoc., **26:** 665–676 (1939).
(14) Franzen, R.: Influence of social and economic factors on the health of the school child. School Health Research Monographs. No. IV. American Child Health Association, New York (1932).
(15) Miller, H. G., and Crombie, D. M. R.: Complete freedom from dental caries, a comparative study of twenty-five children. Lancet, **137:** 131 (July 15, 1939).
(16) Collins, S. D.: Frequency of dental services among 9,000 families, based on Nation-wide periodic canvasses, 1928–31. Pub. Health Rep., **54:** 629–657 (April 21, 1939).
(17) Klem, M. C.: Family expenditures for medical and dental care. J. Am. Dent. Assoc., **26:** 828–840 (1939).
(18) Britten, R. H.: A study of dental care in Detroit, Michigan. Pub. Health Rep., **53:** 446–659 (March 25, 1938).
(19) Dean, H. T., Jay, Philip, Arnold, F. A., McClure, F. J., and Elvove, Elias: Domestic water and dental caries, including certain epidemiological aspects of oral *L. acidophilus*. Pub. Health Rep., **54:** 862–888 (May 26, 1939).
(20) Cady, F. C.: Public health aspects of the dental caries problem. J. Am. Dent. Assoc., **26:** 766–771 (1939).
(21) Mills, C. A.: Factors affecting incidence of dental caries in population groups. J. Dent. Res., **16:** 417–430 (1937).
(22) East, B. R.: Mean annual hours of sunshine and the incidence of dental caries. Am. J. Pub. Health, **29:** 777–780 (1939).

Appendix

TABLE 1A.—*Number of children examined and specified dental status rates by specified age and sex groups and by community economic index values. Data derived from 40 urban communities of New Jersey*

Community designation	Economic status [1]	Age group	Number of children examined		(d) Number of untreated carious defects per 100 children		Number of permanent teeth affected by specified condition per 100 children									
							(F) Filled		(m_1) Extracted		(m_2) Indicated extraction		(*d*MF) [2] Caries experience		(M) Extractions and indicated extractions	
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1	2.0	6–8	362	275	133	182	[3]	8	3	1	6	2	[3]	193	9	3
		9–11	389	332	261	294	20	27	24	23	29	26	334	370	53	49
		12–14	312	252	361	378	30	63	55	62	57	53	503	556	112	115
2	2.5	6–8	720	696	105	125	[3]	[3]	6	7	11	8	[3]	[3]	17	15
		9–11	789	766	206	224	15	16	32	40	44	51	297	331	76	91
		12–14	785	719	287	315	35	50	84	103	77	75	483	543	161	178
3	2.8	6–8	238	254	150	158	5	17	1	5	17	23	173	203	18	28
		9–11	311	289	230	230	46	59	27	27	55	55	358	371	82	82
		12–14	323	305	342	315	59	73	69	64	99	98	569	550	168	162
4	5.7	6–8	185	187	123	136	2	0	2	1	15	12	142	149	17	13
		9–11	248	217	250	276	12	26	15	20	51	54	328	376	66	74
		12–14	250	230	419	471	24	26	27	50	108	101	578	648	135	151
5	12.5	6–8	1	0	200	[3]	[3]	[3]	0	0	0	[3]	[3]	[3]	0	[3]
		9–11	28	26	275	265	64	52	4	36	79	35	422	388	83	71
		12–14	348	399	298	319	123	127	54	63	50	46	525	555	104	109

[1] The percentage of rented nonfarm homes renting for $50 or more per month.
[2] This rate is made up of a heterogeneous experience, namely, the number of dental caries defects in the permanent teeth, plus the number of extracted (and indicated extractions) permanent teeth, plus the number (irrespective of number of fillings) of filled permanent teeth per 100 children.
[3] Unknown or indeterminate.

TABLE 1A.—*Number of children examined and specified dental status rates by specified age and sex groups and by community economic index values. Data derived from 40 urban communities of New Jersey*—Continued

Community designation	Economic status	Age group	Number of children examined		(d) Number of untreated carious defects per 100 children		Number of permanent teeth affected by specified condition per 100 children									
							(F) Filled		(m_1) Extracted		(m_2) Indicated extraction		(*d*MF) Caries experience		(M) Extractions and indicated extractions	
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
6	13.2	6–8	2,468	2,398	105	110	10	16	5	5	8	12	128	143	13	17
		9–11	3,061	3,024	184	183	53	68	32	34	36	37	305	322	68	71
		12–14	2,391	2,224	262	260	100	129	77	84	56	53	495	526	133	137
7	13.3	6–8	747	709	81	81	3	5	4	4	4	7	92	97	8	11
		9–11	852	835	144	156	22	20	29	29	26	29	221	234	55	58
		12–14	756	686	210	210	24	32	49	58	60	67	343	367	109	125
8	13.7	6–8	683	718	113	132	6	10	5	3	7	11	131	156	12	14
		9–11	909	917	203	202	17	27	17	25	38	47	275	301	55	72
		12–14	897	786	243	267	37	44	46	56	73	74	399	441	119	130
9	13.8	6–8	398	365	181	207	6	11	1	1	5	2	193	221	6	3
		9–11	435	388	313	296	42	51	14	19	26	26	395	392	40	45
		12–14	394	458	409	421	77	106	41	45	38	49	565	621	79	94
10	14.1	6–8	98	99	72	94	8	3	7	3	8	18	95	118	15	21
		9–11	159	151	117	157	8	19	26	27	52	55	203	258	78	82
		12–14	227	241	191	249	33	57	59	66	89	98	372	470	148	164
11	14.9	6–8	1,620	1,604	120	129	6	6	2	2	5	7	133	144	7	9
		9–11	1,859	1,809	208	216	36	51	22	23	27	28	293	318	49	51
		12–14	1,834	1,612	279	280	80	101	54	59	45	44	458	484	99	103
12	17.0	6–8	698	703	112	113	3	8	2	1	6	11	123	133	8	12
		9–11	858	806	189	194	32	45	13	20	36	40	270	299	49	60
		12–14	511	415	267	286	54	62	49	52	65	75	435	475	114	127
13	19.9	6–8	381	398	100	119	4	8	(3)	(3)	7	11	(3)	(3)	(3)	(3)
		9–11	405	422	223	222	44	46	(3)	(3)	37	40	(3)	(3)	(3)	(3)
		12–14	364	346	307	334	78	106	81	96	85	74	551	610	166	170
14	20.3	6–8	259	244	88	125	(3)	(3)	(3)	(3)	5	9	(3)	(3)	(3)	(3)
		9–11	577	656	217	224	24	34	44	51	69	73	354	382	113	124
		12–14	646	717	278	327	39	65	94	134	91	87	502	613	185	221
15	20.5	6–8	220	241	73	86	22	12	4	4	4	5	103	107	8	9
		9–11	227	237	167	159	53	63	23	30	22	25	265	277	45	55
		12–14	193	273	226	256	121	110	52	59	44	48	443	473	96	107
16	23.8	6–8	241	240	219	179	23	27	3	3	4	5	249	214	7	8
		9–11	295	258	273	273	68	86	13	15	19	23	373	397	32	38
		12–14	209	212	338	347	136	162	22	24	39	37	535	570	61	61
17	23.9	6–8	215	239	126	136	10	13	2	1	3	6	141	156	5	7
		9–11	402	414	287	287	41	66	26	32	30	36	384	421	56	68
		12–14	552	561	389	406	77	98	75	81	57	66	598	651	132	147
18	25.0	6–8	284	300	156	137	12	16	2	3	7	8	177	164	9	11
		9–11	352	335	202	208	62	80	24	25	42	27	330	340	66	52
		12–14	118	66	363	368	46	49	73	80	78	65	560	562	151	145
19	25.0	6–8	969	993	164	178	7	11	7	8	10	14	188	211	17	22
		9–11	1,234	1,360	263	286	44	59	27	32	45	49	379	426	72	81
		12–14	1,209	1,227	394	403	64	96	64	64	77	79	599	642	141	143
20	27.4	6–8	327	345	97	119	19	9	2	3	4	11	122	142	6	14
		9–11	447	461	174	300	55	73	16	16	35	39	280	328	51	55
		12–14	320	218	247	287	90	95	32	29	72	64	441	475	104	93
21	28.0	6–8	5,112	4,956	90	101	9	13	2	3	3	4	104	121	5	7
		9–11	5,715	5,664	194	200	43	50	19	23	21	24	277	297	40	47
		12–14	4,550	4,473	292	307	74	90	61	64	44	46	471	507	105	110
22	28.0	6–8	6,955	6,822	121	141	7	9	4	6	8	11	140	167	12	17
		9–11	8,097	8,022	214	218	33	45	34	39	38	40	319	342	72	79
		12–14	6,824	6,442	303	321	67	78	83	95	63	65	516	559	146	160

TABLE 1A.—*Number of children examined and specified dental status rates by specified age and sex groups and by community economic index values. Data derived from 40 urban communities of New Jersey*—Continued

Community designation	Economic status	Age group	Number of children examined		(d) Number of untreated carious defects per 100 children		Number of permanent teeth affected by specified condition per 100 children									
							(F) Filled		(m_1) Extracted		(m_2) Indicated extraction		(dMF) Caries experience		(M) Extractions and indicated extractions	
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
23	29.3	6–8	577	588	126	127	7	8	5	3	3	3	141	141	8	6
		9–11	617	607	295	280	43	55	21	16	25	31	384	382	46	47
		12–14	504	437	509	541	62	81	52	63	53	61	676	746	105	124
24	33.4	6–8	91	92	144	142	4	17	1	0	1	9	150	168	2	9
		9–11	173	176	186	181	116	163	13	18	22	19	337	381	35	37
		12–14	227	188	336	386	240	261	58	67	29	40	663	754	87	107
25	33.8	6–8	425	378	49	53	8	8	(3)	(3)	3	2	(3)	(3)	(3)	(3)
		9–11	410	375	99	117	45	59	15	19	16	20	175	215	31	39
		12–14	347	301	160	187	79	78	28	26	44	34	311	325	72	60
26	34.7	6–8	506	513	84	92	24	20	3	5	7	6	118	123	10	11
		9–11	572	569	201	226	68	73	63	65	24	30	356	394	87	95
		12–14	495	459	301	314	109	145	133	117	38	34	581	610	171	151
27	37.9	6–8	137	153	171	173	7	4	4	4	5	16	187	197	9	20
		9–11	259	254	249	280	21	28	33	45	27	43	330	396	60	88
		12–14	109	93	451	454	26	25	82	91	86	80	645	650	168	171
28	40.6	6–8	545	529	158	163	9	11	6	4	34	22	207	200	40	26
		9–11	797	844	231	249	53	82	22	23	42	45	348	399	64	68
		12–14	602	562	267	308	72	94	62	72	59	49	460	523	121	121
29	41.7	6–8	494	475	74	78	29	31	2	2	2	6	107	117	4	8
		9–11	492	462	137	136	68	87	8	15	20	24	233	262	28	39
		12–14	493	384	179	181	103	129	30	34	30	40	362	384	80	74
30	46.3	6–8	462	422	75	119	18	23	3	1	2	2	98	145	5	3
		9–11	525	566	152	160	74	86	15	21	15	13	256	240	30	34
		12–14	465	417	154	130	110	143	49	51	12	9	325	333	61	60
31	46.4	6–8	348	303	94	96	4	9	4	3	5	8	107	116	9	11
		9–11	383	367	210	222	51	70	11	16	29	55	301	363	40	71
		12–14	208	163	270	317	64	55	27	28	75	93	436	493	102	121
32	51.0	6–8	293	286	91	86	19	26	1	3	2	2	113	117	3	5
		9–11	301	280	165	188	128	127	6	13	17	22	316	350	23	35
		12–14	238	206	204	240	201	212	30	50	31	36	466	538	61	86
33	51.9	6–8	115	109	100	117	11	14	0	0	5	4	116	135	5	4
		9–11	132	126	226	205	75	158	0	5	20	22	321	390	20	27
		12–14	77	43	438	349	154	143	0	0	52	47	644	539	52	47
34	54.4	6–8	445	416	153	161	10	13	3	2	1	3	167	179	4	5
		9–11	405	411	264	296	56	74	24	20	14	19	358	409	38	39
		12–14	303	279	415	441	113	137	65	79	37	39	630	696	102	118
35	55.3	6–8	255	273	144	133	43	55	4	3	1	3	192	194	5	6
		9–11	226	242	271	221	118	188	31	28	8	5	428	442	39	33
		12–14	145	144	342	362	206	221	71	68	26	18	645	669	97	86
36	60.7	6–8	291	270	51	73	32	42	1	1	0	1	84	117	1	2
		9–11	311	313	90	93	154	151	5	8	3	4	252	256	8	12
		12–14	98	81	208	159	236	272	47	46	16	19	507	496	63	65
37	63.8	6–8	184	206	60	79	76	76	2	2	2	0	140	157	4	2
		9–11	236	216	128	134	238	264	36	36	5	10	407	444	41	46
		12–14	278	264	153	150	390	396	32	32	12	16	587	594	44	48
38	67.1	6–8	565	541	57	73	38	48	2	1	1	3	98	125	3	4
		9–11	553	533	124	116	171	213	10	10	10	8	315	347	20	18
		12–14	127	96	204	253	294	222	35	31	16	41	549	557	51	72
39	68.8	6–8	106	130	61	62	20	25	0	0	4	2	85	89	4	2
		9–11	125	126	113	125	138	198	11	7	6	10	268	340	17	17
		12–14	61	65	154	174	253	285	44	22	25	31	476	512	69	53
40	71.4	6–8	112	106	76	106	23	25	0	3	0	1	99	135	0	4
		9–11	103	106	180	198	134	138	12	15	9	6	335	357	21	21
		12–14	58	74	216	188	235	239	51	38	28	18	530	543	79	56

THE BURROWING OWL AS A HOST TO THE ARGASID TICK, *ORNITHODORUS PARKERI* [1]

By WILLIAM L. JELLISON, *Assistant Parasitologist, United States Public Health Service*

The argasid tick, *Ornithodorus parkeri* Cooley, has been reported from a variety of small mammalian hosts from Colorado, Montana, Utah, Washington, and Wyoming by Cooley (*1*) and Davis (*2*). The Washington record was of a single nymph collected from a cottontail rabbit near Yakima in June 1934.

Larvae, nymphs, and adults of ticks of this species usually engorge within one-half hour and leave their host to take shelter in the nests and burrows where they are sometimes present in considerable numbers. For this reason infestations on small mammals are not often found and seldom exceed a few immature specimens. Davis (*2*) reported the five heaviest infestations observed up to that time as 38, 44, 44, 44, and 46 nymphs and adults from the burrows of ground squirrels, *Citellus* spp., in Natrona County, Wyo., and Beaverhead County, Mont. Specimens collected from both areas proved to be infected with the spirochetes of relapsing fever.

In the State of Washington, in June 1939, 18 burrows and nests of the burrowing owl, *Speotyto cunicularia*, were examined for ectoparasites and other arthropods. This species of owl is of special interest because it is the only raptorial bird in North America that nests in burrows and because it has been found that ectoparasites, especially fleas from small mammals that have been carried to the nest for food, are trapped in the burrows and can be readily collected (*3*). Of the 18 burrows examined, 9 were infested with *O. parkeri*.

The ticks were found from within a few feet of the opening to the limits of the burrows, but were most abundant close to the nests. The burrows were often 3 or 4 feet underground and 10 to 15 feet long. A peculiar habit of the burrowing owl is to line its burrow and nest with horse manure, often to a depth of 2 or 3 inches. Some writers have claimed that this aids to keep down the flea population. Ticks were found throughout this material.

The following collections were made, and while the numbers indicate actual counts of specimens collected, they by no means represent all the ticks present in the burrows: Franklin County (June 2, 3, and 4) nest 105, 5 ticks; nest 106, 491 ticks; nest 107, 11 ticks; nest 108, 360 ticks. Yakima County (June 4 and 5) nest 109, 31 ticks; nest 112,

[1] Contribution from Rocky Mountain Laboratory, Hamilton, Mont., Division of Infectious Diseases, National Institute of Health. An abstract of this paper is to be read at the meeting of the American Society of Parasitologists at Columbus, Ohio, December 27, 1939, and published in the abstract issue of the Journal of Parasitology.

29 ticks. Douglas County (June 6) nest 115, 318 ticks. Okanogan County (June 7 and 9) nest 118, 49 ticks; nest 119, 24 ticks. Eight nests examined in Adams and Whitman Counties were not found infested.

Many of the ticks from nests containing fledglings were freshly engorged, as shown by the bright red intestinal contents visible through the semi-translucent body wall. Nineteen engorged ticks from nest 109 (Yakima County) were crushed and the intestinal contents smeared and stained. Nucleated erythrocytes of avian blood were readily distinguished on slides representing 17 ticks.

Nest 115, examined June 6 (about 4 miles south of Bridgeport, Douglas County) yielded 318 ticks in all stages of development. An adult owl was flushed from the entrance of the burrow and the nest contained the carcasses of 6 fledglings that had been recently killed by some predator, probably a weasel. According to the owner of the ranch on which this nest was located, the same burrow had been used by nesting owls every year since 1902.

The infested burrows were located along the valleys of the Columbia, Yakima, and Okanogan Rivers and were in sandy soil in semi-arid sagebrush or grass areas.

Though these infestations may have been initiated by ticks carried to the burrows on rodents, the extremely heavy infestations found and the fact that the ticks were feeding on the birds suggests that the relationship is one of long standing and that the burrowing owl, because of its nesting habits, is an accepted host, if not perhaps the most important host, of *O. parkeri* in this area. As these birds are migratory, at least in the northern part of their range, they may be an important factor in the dispersion of the tick.

Since Davis (*4*) listed the burrowing owl, "prairie dog owl," as a host of *Ornithodorus turicata* in Kansas, it is not unlikely that this owl will be found to harbor other *Ornithodorus* ticks in other parts of its range, which extends from southern South America northward well into Canada.

SUMMARY

The burrows and nests of the western burrowing owl, *Speotyto cunicularia*, have been found to harbor large numbers of the argasid tick, *Ornithodorus parkeri*. Infested burrows were found in Franklin, Douglas, Yakima, and Okanogan Counties, Washington. Although previous records indicated that *O. parkeri* is usually a parasite of small fossorial rodents, the heavy burrow infestations found and the finding of avian red cells in the intestinal contents of the ticks suggest the burrowing owl is an important host in the Northwest.

REFERENCES

(1) Cooley, R. A.: *Ornithodoros parkeri:* A new species on rodents. Pub. Health Rep., **51:** 431–433 (1936).
(2) Davis, Gordon E.: *Ornithodoros parkeri:* Distribution and host data; spontaneous infection with relapsing fever spirochetes. Pub. Health Rep., **54:** 1345–1349 (1939).
(3) Jellison, Wm. L.: Sylvatic plague: Studies of predatory and scavenger birds in relation to its epidemiology. Pub. Health Rep., **54:** 792–798 (1939).
(4) Davis, Gordon E.: *Ornithodoros turicata:* The possible vector of relapsing fever in southwestern Kansas. Pub. Health Rep., **51:** 1719 (1936).

PRELIMINARY MORTALITY SUMMARY FOR LARGE CITIES, 1939

The number of deaths reported in a group of 88 large cities during 1939 was 429,419, or 1 percent above the 1938 figure, 424,348, according to preliminary reports made public by the Bureau of the Census, Department of Commerce. The infant death rate in these cities was lower in 1939 than in 1938, the provisional rate for 1939 being 41 per 1,000 live births as compared with 43 per 1,000 live births in 1938.

The weekly death totals reported in these cities from January to July, inclusive, were consistently lower than the average totals for the preceding 3 years. During the remainder of the year, however, the 1939 weekly totals closely approximated the averages of the preceding 3 years. It is probable that the more favorable mortality record of 1939, as compared with the average of the preceding 3 years, is due to the smaller number of deaths from influenza and pneumonia during the winter and to the less extreme heat conditions during the summer.

The 25,713 infant deaths reported for 1939 represent a decrease of 1,446, or 5.3 percent, from the 27,159 reported for 1938. In the comparison of infant death rates for different cities, certain considerations must not be overlooked. Primarily, the effect of differences in sex, age, and racial composition of different cities must be evaluated before valid comparisons can be made.

The figures given in this annual summary are compiled from weekly telegraphic reports received by the Bureau of the Census from departments of health of the cities listed. In most cases the provisional figures collected in this way agree closely with final figures compiled by the Bureau of the Census from transcripts of death certificates. In order to assist in the evaluation of the 1939 provisional data, provisional figures for 1938 are given along with final figures for 1938.

All mortality figures given in the accompanying table are tabulated on the basis of place of death, not place of residence. Deaths given for any city, therefore, include many decedents not residents of that city, and exclude deaths of residents of the city occurring elsewhere.

Owing to the impracticability of making accurate estimates of city populations, total death rates for the cities are not computed. Therefore, direct comparisons between cities are not possible.

Provisional number of deaths and infant mortality for a group of 88 large cities in the United States for the 52-week period, January 1, 1939, to December 30, 1939

[From the Weekly Health Index, Bureau of the Census, Department of Commerce]

City	Number of deaths			Infant mortality					
				Number			Rate		
	Provisional		Final 1938 [2]	Provisional		Final 1938 [2]	Provisional		Final 1938 [2 4]
	1939 [1]	1938 [1]		1939 [1]	1938 [1]		1939 [3]	1938 [3]	
Total (88 cities)	429,419	424,348	426,498	25,713	27,159	28,255	41	43	44
Akron	2,074	2,034	2,054	123	151	160	30	36	38
Albany	1,846	1,780	1,779	124	107	107	48	44	41
Atlanta	4,279	4,325	4,310	421	441	450	61	67	69
White	2,294	2,374	2,356	238	254	265	52	57	60
Negro	1,984	1,949	1,952	182	187	185	79	88	86
Other	1	2	2	1	0	0		0	
Baltimore	10,840	11,035	11,091	634	812	816	43	52	53
White	8,343	8,471	8,515	400	530	536	35	44	45
Negro	2,492	2,556	2,568	234	282	280	66	80	80
Other	5	8	8	0	0	0			
Birmingham	3,507	3,690	3,767	340	402	409	62	73	77
White	1,746	1,821	1,858	171	198	208	51	59	64
Negro	1,761	1,868	1,908	169	204	201	78	94	97
Other	0	1	1	0	0	0	0	0	
Boston	11,064	10,739	10,860	672	722	734	42	45	46
Bridgeport	1,614	1,603	1,636	88	105	107	31	37	38
Buffalo	7,056	7,127	7,122	439	568	580	44	55	56
Cambridge	1,339	1,382	1,375	76	82	82	34	38	37
Camden	1,461	1,606	1,601	148	163	164	44	50	49
Canton	1,089	1,133	1,110	103	113	114	47	45	50
Chicago	35,578	35,068	35,216	1,516	1,743	1,764	31	34	34
Cincinnati	6,700	6,677	6,692	362	414	423	41	46	46
Cleveland	9,830	9,560	9,572	566	552	570	37	35	36
Columbus	4,484	4,245	4,243	289	234	250	50	41	44
Dallas	3,245	3,257	3,272	355	310	317	55	55	52
White	2,462	2,436	2,449	266	234	238	49	50	46
Negro	783	821	823	89	76	79	88	83	84
Dayton	2,633	2,596	2,619	182	215	214	39	46	47
Denver	4,281	4,313	4,350	278	296	317	45	47	50
Des Moines	1,768	1,658	1,813	97	91	135	28	29	42
Detroit	13,125	12,601	12,817	1,080	1,155	1,193	38	40	41
Duluth	1,137	1,202	1,209	90	67	72	46	35	37
El Paso	1,297	1,389	1,390	215	241	241	83	87	88
Erie	1,483	1,398	1,293	73	83	99	29	30	37
Evansville	1,333	1,273	1,312	106	123	128	51	63	61
Fall River	1,517	1,565	1,568	108	102	101	54	52	64
Flint	1,353	1,269	1,261	154	190	195	45	52	52
Fort Wayne	1,406	1,300	1,285	78	72	69	37	34	33
Fort Worth	1,850	1,905	1,905	156	161	173	47	49	51
White	1,513	1,557	1,550	134	130	135	47	49	46
Negro	336	347	355	22	31	38			
Other	1	1	0	0	0	0	0		
Grand Rapids	1,855	1,672	1,668	127	142	140	46	47	47
Hartford	2,107	2,110	2,124	102	129	142	23	31	34
Houston	4,239	4,137	4,116	431	404	408	52	52	53
White	2,975	2,893	2,882	293	280	282	44	43	45
Negro	1,263	1,243	1,232	138	124	126	92	89	92
Other	1	1	2	0	0	0			
Indianapolis	5,406	5,325	5,153	315	389	418	47	56	60
White	4,598	4,517	4,361	265	325	348	45	53	56
Negro	807	807	790	50	64	70	60	78	85
Other	1	1	2	0	0	0			
Jersey City	3,645	3,507	3,522	228	244	244	45	56	35

[1] Based on telegraphic reports received each week from city health officers.
[2] Calendar year; tabulation of transcripts received from State registrars' offices.
[3] The provisional infant mortality rate is computed from deaths under 1 year as reported each week, per 1,000 estimated live births for 1938 and 1939, respectively.
[4] Calendar year; the final infant mortality rate is the number of deaths under 1 year of age per 1,000 live births.

Provisional number of deaths and infant mortality for a group of 88 large cities in the United States for the 52-week period, January 1, 1939, to December 30, 1939—Continued

City	Number of deaths			Infant mortality					
				Number			Rate		
	Provisional		Final 1938	Provisional		Final 1938	Provisional		Final 1938
	1939	1938		1939	1938		1939	1938	
Kansas City, Kans.	1,555	1,524	1,532	99	89	107	81	52	48
White	1,233	1,224	1,239	84	75	92	94	47	47
Negro	322	300	292	15	14	15			
Other	0	0	1	0	0	0	0	0	0
Kansas City, Mo.	4,922	5,126	5,147	280	292	294	42	46	46
Knoxville	1,316	1,442	1,446	145	195	187	62	85	82
White	1,058	1,181	1,182	121	169	163	57	80	78
Negro	258	261	263	24	26	24			
Other	0	0	1	0	0	0	0	0	0
Long Beach	1,743	1,634	1,630	74	73	75	26	25	26
Los Angeles	17,306	16,809	16,849	915	882	891	45	43	43
Louisville	3,652	3,642	4,254	166	220	337	26	39	55
White	2,772	2,746	3,344	138	173	279	25	35	51
Negro	879	896	910	28	47	58	38	67	83
Other	1	0	0	0	0	0	0	0	0
Lowell	1,363	1,429	1,413	68	86	86	38	43	47
Lynn	1,059	1,044	1,049	36	38	41	21	23	29
Memphis	3,985	4,187	4,222	341	397	411	62	72	76
White	2,166	2,230	2,254	192	219	235	56	65	70
Negro	1,818	1,953	1,964	149	178	176	72	85	85
Other	1	4	4	0	0	0	0	0	0
Miami	1,741	1,672	1,667	141	111	117	53	45	47
White	1,340	1,243	1,247	86	75	78	42	40	41
Negro	397	425	416	53	36	39	92	62	67
Other	4	4	4	2	0	0			
Milwaukee	5,189	5,177	5,203	331	398	402	33	38	40
Minneapolis	5,370	5,081	5,190	272	265	301	30	31	34
Nashville	2,715	2,698	2,726	243	259	273	64	72	72
White	1,728	1,688	1,703	173	184	188	58	71	64
Negro	987	1,010	1,023	70	75	85	83	76	100
Newark, N. J.	4,826	4,936	4,904	284	296	305	36	37	38
New Bedford	1,287	1,243	1,235	52	81	84	33	48	49
New Haven	2,134	1,984	2,010	69	48	101	32	21	30
New Orleans	7,734	8,033	8,073	708	808	832	64	77	81
White	4,739	4,872	4,900	326	437	439	49	64	68
Negro	2,995	3,161	3,167	382	371	393	89	101	103
Other	0	0	6	0	0	0	0	0	0
New York	75,362	73,634	73,788	3,794	3,902	3,888	38	38	38
Bronx Borough	11,905	11,338	11,368	462	494	490	31	33	33
Brooklyn Borough	25,730	25,128	25,142	1,393	1,512	1,510	35	37	38
Manhattan Borough	26,554	26,054	26,207	1,406	1,350	1,340	42	41	40
Queens Borough	8,856	8,829	8,765	457	446	448	42	39	39
Richmond Borough	2,317	2,285	2,306	76	100	100	32	42	40
Norfolk	1,358	1,338	1,639	56	115	149	23	47	66
White	738	731	899	23	48	67	14	32	46
Negro	617	606	739	33	67	82	39	73	102
Other	3	1	1	0	0	0	0	0	
Oakland	3,544	3,608	3,611	182	238	239	34	45	45
Oklahoma City	2,149	2,203	2,218	137	177	234	34	41	54
Omaha	2,798	2,762	2,684	171	158	170	41	34	38
Paterson	1,641	1,704	1,710	98	90	95	33	32	33
Peoria	1,383	1,466	1,459	103	130	130	39	48	46
Philadelphia	24,185	24,193	24,214	1,320	1,239	1,242	43	40	40
Pittsburgh	8,400	8,138	8,125	670	625	624	47	43	43
Portland, Oreg.	4,002	4,001	4,003	177	149	156	33	29	31
Providence	3,111	3,254	3,280	212	220	222	38	39	40
Richmond	2,681	2,751	2,776	204	257	270	55	73	74
White	1,611	1,656	1,680	102	128	134	40	52	53
Negro	1,070	1,095	1,096	102	129	136	84	122	121
Rochester	3,620	3,558	3,563	175	192	196	32	36	36
St. Louis	10,698	10,681	10,596	337	417	582	24	30	41
St. Paul	2,971	2,932	3,009	153	136	164	29	25	30
Salt Lake City	1,736	1,769	1,803	141	177	186	36	45	48
San Antonio	3,519	3,318	3,335	642	524	517	99	82	81
White	3,226	3,052	3,065	624	506	502	100	83	82
Negro	288	259	264	18	18	15			
Other	5	7	6	0	0	0			
San Diego	2,481	2,435	2,446	125	152	153	34	39	40
San Francisco	8,721	8,533	8,512	245	225	251	28	26	29
Schenectady	967	973	977	56	51	53	37	34	35
Seattle	4,661	4,878	4,897	167	207	211	29	36	37

Provisional number of deaths and infant mortality for a group of 88 large cities in the United States for the 52-week period, January 1, 1939, to December 30, 1939—Continued

City	Number of deaths			Infant mortality					
				Number			Rate		
	Provisional		Final 1938	Provisional		Final 1938	Provisional		Final 1938
	1939	1938		1939	1938		1939	1938	
Somerville	936	965	962	36	54	52	31	45	40
South Bend	895	862	886	76	58	64	46	35	39
Spokane	1,586	1,609	1,611	102	101	111	39	39	42
Springfield, Mass	1,821	1,768	1,750	82	102	108	44	36	57
Syracuse	2,537	2,502	2,522	157	177	175	39	44	43
Tacoma	1,510	1,441	1,472	78	60	65	37	27	30
Tampa	1,212	1,166	1,162	88	72	85	51	40	46
White	911	820	824	53	42	56	39	29	38
Negro	300	346	337	34	30	29			
Other	1	0	1	1	0	0		0	0
Toledo	3,653	3,510	3,522	217	223	236	42	44	46
Trenton	1,908	1,773	1,637	147	120	123	55	45	47
Utica	1,487	1,370	1,461	68	69	73	38	37	39
Washington, D. C	8,261	7,944	7,962	661	618	622	47	48	48
White	5,240	5,121	5,138	321	326	328	34	37	37
Negro	2,997	2,801	2,797	339	292	290	77	70	71
Other	24	22	27	1	0	4			
Waterbury	920	953	1,109	55	65	80	36	42	38
Wichita	1,441	1,329	1,159	90	69	87	38	28	38
Wilmington, Del	1,498	1,468	1,511	92	108	122	34	40	47
Worcester	2,529	2,547	2,451	135	124	131	38	35	37
Yonkers	1,185	1,164	1,243	49	62	65	27	37	35
Youngstown	1,714	1,706	1,718	115	135	144	33	38	40

MORTALITY DATA FOR 1938, BY CAUSE

The three accompanying tables are taken from special reports recently issued by the Bureau of the Census, Department of Commerce, and present mortality data for 1938 for specific causes and comparisons with 1936 and 1937.

Preliminary figures for total mortality, published several months ago, indicated a new low general death rate of 10.6 per 1,000 population in 1938 as compared with the previous minimum of 10.7 in 1933. The figures given in the present tables reveal the important sources contributing to the favorable mortality picture.

With the exception of measles, the deaths from the four important diseases of childhood remained low, the number of influenza deaths was less than half that in 1936 or 1937, pulmonary tuberculosis caused about 5,000 fewer deaths than in 1937 and 7,000 less than in 1936, heart disease (except diseases of the coronary arteries and angina pectoris) showed a decline, as did also nephritis, while pneumonia caused only 87,923 deaths as compared with 110,009 in 1937 and 119,378 in 1936.

Another important reduction, though not strictly of public health concern is that shown in the number of deaths from automobile accidents, which decreased nearly 7,000 as compared with 1937.

An additional bright spot in the 1938 mortality picture is the continued reduction in the number of deaths due to puerperal causes, the rate for which has been steadily declining for several years.

On the other hand, 1938 again brought increases in mortality from cancer, diabetes, chronic rheumatic heart disease, and diseases of the coronary arteries and angina pectoris, conditions which principally concern the older age groups.

These changes have shifted the relative position of two of the five numerically most important causes of death. Diseases of the heart and cancer retain first and second place, respectively, while cerebral hemorrhage jumped from fifth to third place, taking the position held last year by pneumonia, which dropped to fifth. Nephritis remained fourth on the list.

The decline in mortality from pneumonia which occurred in 1938 is believed to have great significance. The 1938 death rate of 67.5 per 100,000 population is the lowest recorded for the United States since the death registration area was established in 1900. In this connection it should be noted that as compared with the 1937 rate of 85.1 the 1938 rate shows a decline of 20 percent, the most pronounced drop since 1927.

The observed decrease in pneumonia deaths is no doubt due in part to the low influenza mortality, and in part to extended application of modern therapy in pneumonia cases.

Number of deaths (exclusive of stillbirths) from selected causes, and death rates in the United States, 1936–38 [1]

[Number and rate for 1938 are provisional]

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1938	1937	1936	1938	1937	1936
Total deaths	1,381,391	1,450,427	1,479,228	1,060.9	1,122.1	1,151.8
Typhoid and paratyphoid fever (1, 2)	2,418	2,743	3,182	1.9	2.1	2.5
Measles (7)	3,296	1,501	1,267	2.5	1.2	1.0
Scarlet fever (8)	1,206	1,824	2,493	.9	1.4	1.9
Whooping cough (9)	4,778	4,981	2,666	3.7	3.9	2.1
Diphtheria (10)	2,556	2,637	3,065	2.0	2.0	2.4
Influenza (11)	16,520	38,005	33,811	12.7	29.4	26.3
Dysentery (13)	2,933	2,974	3,122	2.3	2.3	2.4
Erysipelas (15)	712	1,246	2,006	.5	1.0	1.6
Acute poliomyelitis and acute polioencephalitis (16)	487	1,461	780	.4	1.1	.6
Epidemic cerebrospinal meningitis (18)	1,024	2,208	3,020	.8	1.7	2.4
Tuberculosis of the respiratory system (23)	58,027	63,330	65,043	44.6	49.0	50.6
Tuberculosis (all other forms) (24–32)	5,709	5,994	6,484	4.4	4.6	5.0
Syphilis (34)	12,670	13,221	12,612	9.7	10.2	9.8
Malaria (38)	2,378	2,729	3,943	1.8	2.1	3.1
Cancer of digestive tract and peritoneum (46)	70,807	69,335	68,239	54.4	53.6	53.1
Cancer of uterus and other female genital organs (48, 49)	20,235	19,981	19,833	15.5	15.5	15.4
Cancer of the breast (50)	14,460	13,939	13,708	11.1	10.8	10.7
Cancer (all other forms) (45, 47, 51–53)	43,712	41,519	40,833	33.6	32.1	31.8
Acute rheumatic fever (56)	2,019	1,958	2,175	1.6	1.5	1.7
Chronic rheumatism, osteoarthritis (57)	1,697	1,748	1,829	1.3	1.4	1.4
Diabetes mellitus (59)	31,037	30,587	30,406	23.8	23.7	23.7
Pellagra (62)	3,205	3,258	3,740	2.5	2.5	2.9
Alcoholism (acute or chronic) (75)	2,569	3,305	3,714	2.0	2.6	2.9
Progressive locomotor ataxia (tabes dorsalis), general paralysis of insane (80, 83)	5,331	5,055	5,453	4.1	3.9	4.2

[1] Vital Statistics—Special Reports, vol. 9, No. 7, p. 15 (Dec. 29, 1939). Bureau of the Census, Department of Commerce.

Number of deaths (exclusive of stillbirths) from selected causes, and death rates in the United States, 1936–38—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1938	1937	1936	1938	1937	1936
Cerebral hemorrhage, cerebral embolism and thrombosis (82)	111,567	111,753	116,562	85.7	86.5	90.8
Chronic rheumatic heart diseases (90a, 92c, 93c, 95c)	9,429	7,454	----------	7.2	5.8	-------
Diseases of coronary arteries and angina pectoris (94)	77,444	69,758	----------	59.5	54.0	-------
Heart diseases (all other forms) (90b, 91, 92a, b, 93a–d, 95a, b)	263,295	269,189	341,350	202.2	208.3	265.8
Arteriosclerosis (except coronary), idiopathic anomalies of blood pressure (97, 102)	22,208	23,059	23,893	17.1	17.8	18.6
Pneumonia (all forms) (107–109)	87,923	110,009	119,378	67.5	85.1	93.0
Ulcer of stomach and duodenum (117)	8,403	8,765	8,566	6.5	6.8	6.7
Diarrhea and enteritis (under 2 years) (119)	14,107	14,406	15,612	10.8	11.1	12.2
Diarrhea and enteritis (2 years and over) (120)	4,401	4,519	5,339	3.4	3.5	4.2
Appendicitis (121)	14,300	15,340	16,480	11.0	11.9	12.8
Hernia, intestinal obstruction (122)	12,612	13,111	13,433	9.7	10.1	10.5
Cirrhosis of the liver (124)	10,808	10,960	10,587	8.3	8.5	8.2
Biliary calculi and other diseases of the gall bladder and biliary passages (126, 127)	8,469	8,636	8,863	6.5	6.7	6.9
Nephritis (130–132)	100,520	102,877	106,865	77.2	79.6	83.2
Puerperal septicemia (140, 142a, 145)	3,333	3,727	4,606	2.6	2.9	3.6
Puerperal albuminuria and eclampsia, other toxemias of pregnancy (146, 147)	2,521	2,717	2,784	1.9	2.1	2.2
Other puerperal causes (141, 142b–144, 148–150)	4,099	4,325	4,792	3.1	3.3	3.7
Congenital malformations (157)	12,102	11,842	12,093	9.3	9.2	9.4
Suicide (163–171)	19,802	19,294	18,294	15.2	14.9	14.2
Homicide (172–175)	8,799	9,811	10,232	6.8	7.6	8.0
Automobile accidents (primary) (210)	30,564	37,205	35,761	23.5	28.8	27.8
Other motor vehicle accidents (206, 208, 211)	2,018	2,438	2,328	1.5	1.9	1.8
Other accidents (176–195, 201–205, 207, 209, 212–214)	61,223	65,562	71,963	47.0	50.7	56.0
All other causes [1]	181,658	188,131	196,023	139.5	145.5	152.6

[1] Refer to complete International List titles.

Number of deaths from all puerperal causes and death rates (number per 1,000 live births) in the United States, 1934–38 [1]

Cause of death	Number of deaths				Rate per 1,000 live births					
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
All puerperal causes	9,953	10,769	12,182	12,544	12,859	4.35	4.88	5.68	5.82	5.93
Abortion with septic conditions	1,380	1,531	1,801	2,167	2,204	.60	.69	.83	1.00	1.01
Abortion without mention of septic condition (to include hemorrhage)	436	582	680	602	570	.19	.26	.31	.27	.26
Ectopic gestation	437	461	486	545	571	.19	.20	.22	.25	.26
With septic condition specified	79	83	100	105	106	.03	.03	.04	.04	.04
Without mention of septic condition	358	378	386	440	465	.15	.17	.17	.20	.21
Other accidents of pregnancy (not to include hemorrhage)	104	90	80	84	94	.04	.04	.03	.03	.04
Puerperal hemorrhage	1,320	1,319	1,398	1,370	1,404	.57	.59	.65	.63	.64
Placenta praevia	355	353	400	425	432	.15	.16	.18	.19	.19
Other puerperal hemorrhages	965	966	998	945	972	.42	.43	.46	.43	.44
Puerperal septicemia (not specified as due to abortion)	1,874	2,113	2,705	2,902	2,808	.81	.95	1.26	1.34	1.29
Puerperal septicemia and pyemia	1,873	2,105	2,697	2,897	2,800	.81	.95	1.25	1.34	1.29
Puerperal tetanus	1	8	8	5	8	(2)	(2)	(2)	(2)	(2)
Puerperal albuminuria and eclampsia	2,023	2,161	2,235	2,229	2,431	.88	.98	1.04	1.03	1.12
Other toxemias of pregnancy	498	556	549	497	559	.21	.25	.25	.23	.25
Puerperal phlegmasia, alba dolens, embolus, sudden death (not specified as septic)	524	495	567	578	561	.22	.22	.26	.26	.25
Other accidents of childbirth	1,338	1,423	1,635	1,543	1,621	.58	.64	.76	.71	.74
Cesarean operation	376	367	409	336	416	.16	.16	.19	.15	.19
Others under this title	962	1,056	1,226	1,207	1,205	.42	.47	.57	.56	.55
Other and unspecified conditions of the puerperal state	19	38	46	27	36	(2)	.01	.02	.01	.01

[1] Vital Statistics—Special Reports, vol. 9, No. 5, p. 9 (Dec. 28, 1939). Bureau of the Census, Department of Commerce.

[2] Less than one-hundredth of 1 per 1,000 live births.

Summary of fatalities due to motor-vehicle accidents in the United States, 1936–38[1]

Area	All motor-vehicle accidents			Automobile accidents (except collisions with railroad trains and street cars)		
	1938	1937	1936	1938	1937	1936
United States	32,582	39,643	38,089	30,564	37,205	35,761
Alabama	638	686	698	599	654	667
Arizona	214	257	242	205	249	234
Arkansas	311	375	433	296	361	419
California	2,784	3,152	3,123	2,573	2,913	2,886
Colorado	353	411	388	333	386	363
Connecticut	351	438	450	341	426	441
Delaware	75	106	87	73	103	84
District of Columbia	134	179	165	129	170	159
Florida	742	744	687	689	715	652
Georgia	803	968	995	761	908	938
Idaho	183	192	188	160	182	186
Illinois	2,167	2,589	2,477	1,968	2,342	2,183
Indiana	1,161	1,447	1,374	1,028	1,253	1,187
Iowa	500	616	567	451	545	507
Kansas	446	502	580	396	431	534
Kentucky	651	831	699	616	799	666
Louisiana	509	509	582	490	496	560
Maine	187	210	215	182	203	202
Maryland	381	536	462	377	519	452
Massachusetts	682	890	899	664	875	875
Michigan	1,485	2,188	1,930	1,417	2,052	1,813
Minnesota	652	672	710	602	610	663
Mississippi	405	463	519	385	435	487
Missouri	886	1,029	1,022	836	959	964
Montana	143	177	174	136	168	168
Nebraska	233	336	310	212	297	290
Nevada	66	66	74	63	65	71
New Hampshire	116	152	120	106	146	110
New Jersey	905	1,304	1,129	869	1,266	1,094
New Mexico	156	208	207	153	204	204
New York	2,548	3,076	2,767	2,453	2,969	2,647
North Carolina	910	1,045	979	858	1,009	930
North Dakota	121	124	135	104	111	129
Ohio	1,985	2,675	2,426	1,784	2,441	2,167
Oklahoma	514	650	660	510	608	633
Oregon	339	366	369	326	341	347
Pennsylvania	2,035	2,636	2,461	1,949	2,506	2,359
Rhode Island	83	127	114	82	121	111
South Carolina	477	552	590	459	520	571
South Dakota	145	115	129	139	105	123
Tennessee	588	736	786	559	699	758
Texas	1,786	2,102	1,994	1,715	2,033	1,924
Utah	220	205	187	186	193	180
Vermont	91	100	102	79	91	95
Virginia	696	843	840	674	811	792
Washington	494	556	631	471	537	601
West Virginia	393	476	516	376	446	501
Wisconsin	711	891	783	637	801	720
Wyoming	97	135	114	93	131	114

[1] Vital Statistics—Special Reports, vol. 9, No. 8, p. 17 (Dec. 29, 1939). Bureau of the Census, Department of Commerce.

DEATHS DURING WEEK ENDED JANUARY 13, 1940

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Jan. 13, 1940	Corresponding week, 1939
Data from 88 large cities of the United States:		
Total deaths	9,716	9,182
Average for 3 prior years	9,824	
Total deaths, first 2 weeks of year	18,966	18,324
Deaths under 1 year of age	558	544
Average for 3 prior years	581	
Deaths under 1 year of age, first 2 weeks of year	1,125	1,111
Data from industrial insurance companies:		
Policies in force	66,406,002	68,293,176
Number of death claims	12,708	13,728
Death claims per 1,000 policies in force, annual rate	10.0	10.5
Death claims per 1,000 policies, first 2 weeks of year, annual rate	9.0	8.8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED JANUARY 27, 1940

Summary

A total of 13,242 cases of influenza was reported for the current week, as compared with 12,568 cases for the preceding week and with 3,395 for the corresponding period in 1939, which was also the median week for the 5 years, 1935–1939.

The highest incidence of influenza continues to prevail in the South Atlantic and South Central States, which reported 12,629 cases, or more than 95 percent of the total. The greatest increases are shown for Virginia, from 1,128 to 2,107 cases, and Texas, from 1,405 to 2,158 cases. Some increase occurred also in the three Pacific States—Washington, Oregon, and California—which reported 708 cases, as compared with 494 for the preceding week. The effect of these increases was almost nullified, however, by decreases in other States. It may be of interest to note that the peak week for influenza for the 5-year median occurred during the seventh week of the year and that for 1939 during the tenth week (March 11), when 18,135 cases were reported.

The favorable conditions with respect to the other 8 communicable diseases continue to prevail, all of which, with the exception of poliomyelitis, have remained below the 5-year median expectancy; and that disease is now approaching the median.

Telegraphic morbidity reports from State health officers for the week ended January 27, 1940, and comparison with corresponding week of 1939 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	Jan. 27, 1940	Jan. 28, 1939		Jan. 27, 1940	Jan. 28, 1939		Jan. 27, 1940	Jan. 28, 1939		Jan. 27, 1940	Jan. 28, 1939	
NEW ENG.												
Maine	4	10	2	34	10	10	154	8	143	0	0	0
New Hampshire	0	0	0	----	1	1	6	2	12	0	0	0
Vermont	1	0	0	----	----	----	22	17	17	0	0	0
Massachusetts	4	4	5	----	----	----	210	551	344	2	2	2
Rhode Island	0	0	0	----	----	----	98	7	31	1	0	0
Connecticut	2	2	2	4	4	18	164	507	347	0	1	1
MID. ATL.												
New York	28	28	40	[1] 16	[1] 155	[1] 21	212	1,214	823	3	4	7
New Jersey	1	13	13	32	19	19	28	25	139	0	0	1
Pennsylvania	26	53	48	----	----	----	52	140	518	15	7	7
E. NO. CEN.												
Ohio	23	37	37	21	----	7	38	21	65	2	0	9
Indiana	20	18	29	25	4	47	16	15	165	1	0	1
Illinois	33	46	45	79	30	35	32	31	47	0	4	5
Michigan [3]	9	8	18	12	2	4	354	427	270	1	2	2
Wisconsin	3	5	3	64	47	53	214	547	547	1	0	0
W. NO. CEN.												
Minnesota	1	7	5	8	2	2	235	1,257	104	0	1	1
Iowa	3	6	6	22	2	7	78	136	98	0	0	2
Missouri	3	26	26	26	33	214	4	8	21	1	2	2
North Dakota	2	4	4	42	6	11	6	297	18	0	1	1
South Dakota	0	5	3	4	2	----	5	397	14	0	0	0
Nebraska	5	0	0	----	1	4	28	32	32	1	0	1
Kansas	4	7	9	142	6	25	213	8	41	0	0	1
SO. ATL.												
Delaware	2	5	1	----	----	----	0	0	11	0	0	0
Maryland [3]	2	6	7	132	10	47	7	853	137	0	1	3
Dist. of Col.	4	3	7	19	----	4	1	22	22	0	1	2
Virginia	17	23	23	2,107	617	----	41	135	180	1	5	5
West Virginia	17	17	17	53	41	61	4	11	12	1	2	2
North Carolina [3]	10	18	31	122	9	34	42	565	565	0	2	3
South Carolina [3]	10	15	5	2,169	649	711	11	5	28	0	0	1
Georgia [3]	4	8	14	1,249	110	193	24	39	0	0	0	2
Florida	5	10	10	62	5	13	33	72	25	0	0	1
E. SO. CEN.												
Kentucky	13	11	11	59	27	46	23	48	51	1	5	8
Tennessee	3	8	15	325	109	185	47	133	96	2	2	5
Alabama [3]	12	12	23	900	169	362	40	116	116	3	2	2
Mississippi [3]	2	8	8	----	----	----	----	----	----	1	1	1
W. SO. CEN.												
Arkansas	10	8	10	1,859	139	139	19	32	18	0	1	1
Louisiana	6	35	19	42	8	12	2	191	55	0	1	0
Oklahoma	8	13	10	373	193	193	2	111	32	1	0	2
Texas [3]	35	58	64	2,158	703	703	196	75	75	0	4	3
MOUNTAIN												
Montana	0	3	3	9	50	57	32	405	54	2	0	0
Idaho	3	0	1	1	1	6	148	64	64	0	0	0
Wyoming	1	1	0	2	----	----	10	45	9	0	0	0
Colorado	8	24	9	27	45	----	27	48	48	0	1	1
New Mexico	0	2	4	19	10	10	9	29	29	0	0	0
Arizona	3	3	3	271	81	130	10	1	2	0	1	0
Utah [3]	0	0	0	45	9	----	149	37	37	1	0	0
PACIFIC												
Washington	3	1	1	13	----	----	801	113	94	0	0	1
Oregon	9	2	2	221	53	53	147	22	22	1	0	1
California [3]	24	28	31	474	33	144	389	2,025	239	0	2	3
Total	383	601	691	13,242	3,395	3,395	4,383	10,844	10,844	42	55	104
4 weeks	1,829	2,489	2,507	47,956	12,765	12,765	15,633	36,655	36,655	129	210	377

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended January 27, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	Jan. 27, 1940	Jan. 28, 1939		Jan. 27, 1940	Jan. 28, 1939		Jan. 27, 1940	Jan. 28, 1939		Jan. 27, 1940	Jan. 28, 1939	
NEW ENG.												
Maine	0	0	0	17	13	21	0	0	0	1	1	0
New Hampshire	0	0	0	8	8	11	0	0	0	0	2	0
Vermont	0	0	0	11	6	11	0	0	0	0	0	0
Massachusetts	0	0	0	139	194	249	0	0	0	1	3	1
Rhode Island	0	0	0	8	20	20	0	0	0	0	0	0
Connecticut	0	0	0	82	74	74	0	0	0	10	0	0
MID. ATL.												
New York	0	0	0	597	556	677	0	0	0	6	6	6
New Jersey	0	1	1	256	177	172	0	0	0	0	0	0
Pennsylvania	0	0	1	388	351	602	0	0	0	10	10	6
E. NO. CEN.												
Ohio	1	0	0	376	495	486	1	19	8	0	7	1
Indiana	1	0	0	188	218	211	7	56	2	1	0	0
Illinois	1	1	1	489	524	584	1	10	17	1	3	3
Michigan [2]	0	0	0	317	571	560	0	2	1	2	1	3
Wisconsin	0	0	0	167	289	348	2	15	13	1	0	2
W. NO. CEN.												
Minnesota	2	0	0	125	169	169	13	17	15	0	4	1
Iowa	6	0	0	71	123	191	11	46	24	2	0	1
Missouri	0	0	0	86	129	210	2	10	10	2	2	2
North Dakota	0	0	0	23	21	29	0	10	10	0	0	0
South Dakota	0	0	0	16	21	44	0	9	4	0	0	0
Nebraska	0	0	0	36	43	57	0	3	3	0	4	2
Kansas	1	0	0	114	169	213	0	21	11	0	6	1
SO. ATL.												
Delaware	0	0	0	14	0	14	0	0	0	0	0	0
Maryland [2]	0	0	0	54	50	67	0	0	0	2	4	2
Dist. of Col	0	0	0	31	13	16	0	0	0	0	0	0
Virginia	0	0	0	68	47	47	3	0	0	3	2	5
West Virginia	2	2	0	60	65	51	0	0	0	0	6	3
North Carolina [2]	0	2	1	48	58	50	0	0	0	0	4	5
South Carolina [2]	1	1	0	7	14	6	0	0	0	2	3	2
Georgia [2]	0	0	0	12	18	18	0	2	0	4	3	3
Florida	0	3	0	6	14	11	1	0	0	0	1	1
E. SO. CEN.												
Kentucky	1	1	0	61	71	67	0	3	0	0	0	2
Tennessee	0	0	0	54	53	41	0	1	0	0	2	2
Alabama [2]	2	0	1	16	13	14	0	1	1	0	3	2
Mississippi [2]	0	0	0	4	12	11	0	1	0	1	1	1
W. SO. CEN.												
Arkansas	0	0	0	13	18	9	2	1	2	3	2	3
Louisiana	0	3	1	18	16	16	0	0	0	3	21	4
Oklahoma	1	0	0	43	54	49	0	48	6	0	7	3
Texas [2]	1	2	2	66	114	110	5	29	2	4	11	11
MOUNTAIN												
Montana	1	1	0	30	24	35	0	4	7	0	2	1
Idaho	1	0	0	4	9	29	0	15	3	7	0	0
Wyoming	0	0	0	14	11	12	0	1	1	0	0	0
Colorado	0	0	0	36	41	41	4	8	4	1	1	1
New Mexico	0	0	0	16	37	23	0	5	0	6	1	2
Arizona	0	0	0	14	2	20	0	24	0	3	0	0
Utah [2]	1	0	0	25	23	72	0	0	0	0	1	0
PACIFIC												
Washington	0	0	0	61	73	74	0	2	15	0	0	1
Oregon	0	0	0	46	70	70	0	15	11	0	0	0
California [2]	10	0	2	192	252	252	3	10	4	3	5	5
Total	33	17	26	4,527	5,343	6,359	55	388	275	79	129	101
4 weeks	151	67	85	16,487	20,581	23,666	319	1,548	1,144	329	458	464

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended January 27, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Whooping cough	
	Week ended—	
	Jan. 27, 1940	Jan. 28, 1939
NEW ENG.		
Maine	130	18
New Hampshire	7	0
Vermont	139	79
Massachusetts	104	189
Rhode Island	4	60
Connecticut	78	143
MID. ATL.		
New York	405	653
New Jersey	69	422
Pennsylvania	349	441
E. NO. CEN.		
Ohio	80	265
Indiana	23	5
Illinois	85	389
Michigan [1]	102	2 9
Wisconsin	103	300
W. NO. CEN.		
Minnesota	47	52
Iowa	5	21
Missouri	11	23
North Dakota	0	1
South Dakota	2	3
Nebraska	3	0
Kansas	22	7
SO. ATL.		
Delaware	7	5
Maryland [2]	86	31
Dist. of Col.	1	25
Virginia	21	74
West Virginia	32	29
North Carolina [2]	44	302
SO. ATL.—continued		
South Carolina [2]	8	66
Georgia [2]	9	27
Florida	5	11
E. SO. CEN.		
Kentucky	84	16
Tennessee	18	22
Alabama [2]	10	57
Mississippi [2]		
W. SO. CEN.		
Arkansas	17	13
Louisiana	1	1
Oklahoma	5	5
Texas [3]	60	128
MOUNTAIN		
Montana	5	14
Idaho	6	2
Wyoming	12	0
Colorado	32	74
New Mexico	62	26
Arizona	12	8
Utah [2]	149	25
PACIFIC		
Washington	29	18
Oregon	29	15
California [2]	166	112
Total	2,678	4,495
4 weeks	10,405	17,459

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Typhus fever, week ended Jan. 27, 1940, 23 cases as follows: North Carolina, 2; South Carolina, 3; Georgia, 12; Alabama, 2; Texas, 3; California, 1.

CASES OF VENEREAL DISEASES REPORTED FOR NOVEMBER 1939

These reports are published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State and city health officers. They are preliminary and are therefore subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

Reports from States

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	1,445	4.94	315	1.08
Arizona	181	4.33	133	3.18
Arkansas	1,002	4.83	241	1.16
California	2,126	3.40	1,817	2.90
Colorado	87	.81	50	.46
Connecticut	159	.91	111	.63
Delaware	226	8.59	30	1.14
District of Columbia	655	10.30	219	3.44
Florida	1,829	10.77	136	.80
Georgia	2,830	9.09	36	.12
Idaho	31	.62	20	.40
Illinois	1,982	2.50	1,197	1.51
Indiana	711	2.04	126	.36
Iowa	189	.74	116	.45
Kansas	216	1.16	92	.49
Kentucky	758	2.56	309	1.04
Louisiana	726	3.39	86	.40
Maine	28	.33	46	.53
Maryland	1,140	6.77	281	1.67
Massachusetts	419	.95	426	.96
Michigan	976	2.00	583	1.19
Minnesota	243	.91	196	.73
Mississippi	1,876	9.20	2,298	11.26
Missouri	601	1.49	216	.54
Montana	60	1.10	60	1.10
Nebraska	39	.29	57	.42
Nevada	10	.98	9	.88
New Hampshire	17	.33	8	.16
New Jersey	914	2.10	285	.65
New Mexico	133	3.15	57	1.35
New York	3,332	2.57	1,281	.99
North Carolina	2,375	6.73	378	1.07
North Dakota	42	.59	53	.75
Ohio	944	1.40	384	.57
Oklahoma	654	2.54	253	.98
Oregon	126	1.21	116	1.12
Pennsylvania	1,370	1.34	120	.12
Rhode Island	77	1.13	54	.79
South Carolina	1,089	5.76	254	1.34
South Dakota	45	.65	19	.27
Tennessee	1,147	3.92	315	1.08
Texas	3,899	6.26	638	1.02
Utah	44	.84	32	.61
Vermont	18	.47	19	.49
Virginia	1,612	5.88	335	1.22
Washington	219	1.31	316	1.89
West Virginia	220	1.16	78	.41
Wisconsin	62	.21	110	.37
Wyoming	18	.76	12	.51
Alaska	18	2.87	21	3.35
Hawaii	83	2.05	76	1.88
Total	39,003	2.98	14,420	1.10

Reports from cities of 200,000 population or over [1]

Akron, Ohio	53	1.93	32	1.16
Atlanta, Ga	380	12.66	77	2.56
Baltimore, Md	568	6.80	176	2.11
Birmingham, Ala	276	9.38	52	1.77
Boston, Mass	137	1.72	149	1.87
Chicago, Ill	1,316	3.59	774	2.11
Cincinnati, Ohio	148	3.13	127	2.69
Cleveland, Ohio	224	2.37	71	.75
Columbus, Ohio	64	2.04	26	.83

[1] No reports received from Buffalo, Kansas City, Milwaukee, New Orleans, Oakland, St. Louis, or Toledo.

Reports from cities of 200,000 population or over—Continued

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Dallas, Tex	190	6.25	87	2.86
Dayton, Ohio	42	1.89	14	.63
Denver, Colo	66	2.19	35	1.16
Detroit, Mich	515	2.84	330	1.82
Houston, Tex	281	7.84	164	4.58
Indianapolis, Ind	21	.54	26	.67
Jersey City, N. J	24	.74	8	.25
Los Angeles, Calif	472	3.10	344	2.26
Louisville, Ky	164	4.84	72	2.12
Memphis, Tenn	392	13.42	77	2.64
Minneapolis, Minn	50	1.00	65	1.30
Newark, N. J	272	5.99	107	2.36
New York, N. Y	2,253	3.01	871	1.16
Omaha, Nebr	16	.72	28	1.25
Philadelphia, Pa	678	3.38	.....	.....
Pittsburgh, Pa	209	2.97	27	.38
Portland, Oreg	65	2.03	64	2.00
Providence, R. I	38	1.46	37	1.43
Rochester, N. Y	48	1.40	39	1.14
St. Paul, Minn	38	1.32	24	.83
San Antonio, Tex	138	5.28	46	1.76
San Francisco, Calif	177	2.57	264	3.83
Seattle, Wash	83	2.14	96	2.48
Syracuse, N. Y	91	4.04	8	.35
Washington, D. C	655	10.30	219	3.44

WEEKLY REPORTS FROM CITIES

City reports for week ended Jan. 13, 1940

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	193	1,137	144	2,250	1,008	1,710	35	368	20	1,128	.....
Current week [1]	103	1,027	61	843	713	1,186	1	321	9	720	.....
Maine:											
Portland	0	.....	0	16	3	1	0	0	0	7	32
New Hampshire:											
Concord	0	.....	0	0	3	0	0	0	0	0	14
Manchester	0	.....	0	0	1	2	0	0	0	0	23
Nashua	0	.....	0	8	0	0	0	0	0	0	5
Vermont:											
Barre	0	.....	0	0	0	0	0	0	0	0	3
Burlington	0	.....	0	0	0	0	0	0	0	4	10
Rutland	0	.....	0	0	0	0	0	0	0	0	10
Massachusetts:											
Boston	2	.....	0	21	22	34	0	5	1	53	209
Fall River	1	.....	0	0	2	0	0	1	0	7	35
Springfield	0	.....	0	1	5	2	0	0	0	4	44
Worcester	0	.....	0	0	8	11	0	1	0	11	56
Rhode Island:											
Pawtucket	0	.....	0	0	0	0	0	0	0	8	28
Providence	0	.....	0	207	9	3	0	0	0	12	76
Connecticut:											
Bridgeport	0	.....	0	0	5	2	0	1	0	0	30
Hartford	1	.....	0	2	4	5	0	1	1	10	43
New Haven	0	2	0	1	4	2	0	1	0	10	67
New York:											
Buffalo	1	.....	1	1	18	5	0	4	0	5	155
New York	18	13	3	12	93	211	0	69	2	86	1,562
Rochester	1	.....	0	0	5	7	0	0	0	11	63
Syracuse	0	.....	0	0	7	7	0	1	0	22	54

[1] Figures for Terre Haute estimated; report not received.

City reports for week ended Jan. 13, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New Jersey:											
Camden	0	1	1	0	4	11	0	0	0	0	29
Newark	0	5	0	2	3	10	0	3	0	17	99
Trenton	0	----	0	1	6	4	0	5	0	0	52
Pennsylvania:											
Philadelphia	1	5	4	9	38	69	0	21	0	40	398
Pittsburgh	4	6	5	1	24	32	0	4	0	11	214
Reading	0	----	0	1	3	1	0	0	0	8	40
Scranton	1	----	----	0	----	5	0	----	0	0	----
Ohio:											
Cincinnati	8	1	4	0	11	20	0	9	0	8	161
Cleveland	1	39	1	4	17	52	0	9	0	39	241
Columbus	1	1	1	0	9	4	0	3	0	3	111
Toledo	0	----	0	2	4	12	0	5	0	15	80
Indiana:											
Anderson	0	----	0	0	1	1	0	0	0	2	12
Fort Wayne	1	----	0	0	0	3	0	1	0	0	24
Indianapolis	0	----	2	1	15	27	0	5	0	5	115
Muncie	0	----	1	0	1	0	0	1	0	0	17
South Bend	0	----	0	0	0	1	0	0	0	3	13
Terre Haute	----	----	----	----	----	----	----	----	----	----	----
Illinois:											
Alton	1	----	0	0	1	3	0	0	0	0	8
Chicago	12	19	3	10	51	226	0	30	0	40	797
Elgin	0	----	0	0	0	1	0	0	0	1	7
Moline	1	----	0	0	0	1	0	0	0	0	11
Springfield	0	----	1	0	3	4	0	0	0	2	20
Michigan:											
Detroit	2	4	1	13	23	82	0	8	0	26	292
Flint	0	----	0	0	6	15	0	0	0	7	34
Grand Rapids	0	----	0	1	5	9	0	0	0	5	41
Wisconsin:											
Kenosha	0	----	0	0	0	0	0	0	0	4	12
Madison	0	----	0	0	2	1	0	0	0	4	18
Milwaukee	0	----	0	0	12	30	0	3	0	8	134
Racine	0	----	0	1	1	0	0	0	0	1	19
Superior	0	----	0	1	0	3	0	0	0	0	13
Minnesota:											
Duluth	0	----	0	168	1	3	0	0	0	0	22
Minneapolis	1	----	0	1	4	23	0	1	1	12	98
St. Paul	0	----	0	2	6	18	0	1	0	33	69
Iowa:											
Cedar Rapids	0	----	----	11	----	2	0	----	0	0	----
Davenport	0	----	----	1	----	2	0	----	0	0	----
Des Moines	0	----	0	18	0	16	1	0	0	0	40
Sioux City	0	----	----	0	----	0	0	----	0	0	----
Waterloo	0	----	----	1	----	6	0	----	0	0	----
Missouri:											
Kansas City	0	----	0	6	11	13	0	1	1	2	94
St. Joseph	0	----	0	0	2	1	0	0	0	0	27
St. Louis	7	----	0	3	17	19	0	3	1	6	218
North Dakota:											
Fargo	0	----	0	0	2	6	0	0	0	0	10
Grand Forks	0	----	----	0	----	0	0	----	0	5	----
Minot	0	----	0	1	0	1	0	0	0	0	3
South Dakota:											
Aberdeen	0	----	----	0	----	1	0	----	0	0	----
Sioux Falls	0	----	0	0	0	0	0	0	0	0	7
Nebraska:											
Omaha	2	----	0	1	9	3	0	2	1	1	76
Kansas:											
Lawrence	0	10	0	1	1	0	0	0	0	1	5
Topeka	1	----	0	0	3	6	0	0	0	0	11
Wichita	3	----	0	71	5	8	0	0	0	2	35
Delaware:											
Wilmington	0	----	0	0	3	3	0	0	0	2	30
Maryland:											
Baltimore	3	21	1	1	22	8	0	9	0	76	301
Cumberland	0	----	0	0	1	4	0	1	0	0	15
Frederick	0	----	0	0	0	0	0	0	0	0	4
District of Columbia:											
Washington	3	11	1	0	11	13	0	5	0	5	185
Virginia:											
Lynchburg	0	----	0	0	2	0	0	0	0	1	11
Norfolk	1	23	0	0	1	0	0	2	0	0	25
Richmond	0	----	3	2	7	5	0	1	0	0	69
Roanoke	0	----	0	1	0	3	0	1	0	0	17

City reports for week ended Jan. 13, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
West Virginia:											
Charleston	0	------	0	0	8	0	0	0	0	0	30
Huntington	2	------	------	0	------	0	0	------	0	0	------
Wheeling	0	------	0	0	3	2	0	0	1	0	21
North Carolina:											
Gastonia	0	2	------	2	------	1	0	------	0	0	------
Raleigh	0	------	0	0	1	4	0	0	0	0	13
Wilmington	1	------	0	0	0	0	0	0	0	0	11
Winston-Salem	0	1	0	0	2	0	0	2	0	1	19
South Carolina:											
Charleston	3	378	2	0	2	1	0	3	0	0	31
Florence	0	3	1	0	5	0	0	0	0	0	15
Greenville	0	------	1	0	2	0	0	0	0	0	16
Georgia:											
Atlanta	1	231	7	11	10	11	0	4	0	1	90
Brunswick	0	------	0	0	1	1	0	0	0	0	4
Savannah	1	134	8	0	5	3	0	0	0	0	39
Florida:											
Miami	0	6	0	2	2	2	0	1	0	0	46
Tampa	1	1	1	2	2	3	0	3	0	0	37
Kentucky:											
Ashland	0	6	0	0	0	2	0	0	0	8	5
Covington	0	------	0	0	2	2	0	1	0	0	17
Lexington	0	------	0	0	3	2	0	1	0	0	17
Louisville	3	3	0	2	7	5	0	4	0	34	85
Tennessee:											
Knoxville	1	25	1	0	3	8	0	2	0	0	27
Memphis	0	------	1	3	10	15	0	2	0	5	93
Nashville	0	------	0	2	14	4	0	0	0	4	------
Alabama:											
Birmingham	0	43	2	3	6	5	0	6	0	1	75
Mobile	1	1	1	1	1	2	0	2	0	0	31
Montgomery	0	12	------	12	------	1	0	------	0	0	------
Arkansas:											
Fort Smith	2	9	------	0	------	0	0	------	0	0	------
Little Rock	0	4	0	0	8	0	0	3	0	0	36
Louisiana:											
Lake Charles	0	------	0	1	1	1	0	1	0	0	4
New Orleans	2	19	0	1	24	10	0	15	0	1	193
Shreveport	0	------	0	0	10	1	0	1	0	3	41
Oklahoma:											
Oklahoma City	0	6	1	0	4	3	0	1	0	0	31
Tulsa	0	------	------	0	------	0	0	------	0	4	------
Texas:											
Dallas	6	3	3	0	7	9	0	4	0	5	72
Fort Worth	0	------	0	0	5	1	0	0	0	10	42
Galveston	0	------	0	0	2	3	0	1	0	0	22
Houston	1	------	0	0	11	0	0	6	0	3	81
San Antonio	0	5	0	51	0	3	0	23	0	0	97
Montana:											
Billings	0	------	1	0	0	1	0	0	0	0	6
Great Falls	0	------	0	0	0	2	0	0	0	0	4
Helena	0	------	0	1	0	1	0	0	0	0	2
Missoula	0	------	0	0	0	2	0	0	0	0	5
Idaho:											
Boise	0	------	0	0	4	1	0	0	0	0	6
Colorado:											
Colorado Springs	0	------	0	0	0	0	0	0	0	0	10
Denver	6	------	0	3	13	5	0	0	0	5	81
Pueblo	2	------	0	3	7	3	0	0	0	0	10
New Mexico:											
Albuquerque	0	------	0	0	1	3	0	1	0	7	17
Utah:											
Salt Lake City	0	------	2	31	2	5	1	2	0	45	44
Washington:											
Seattle	0	------	0	40	8	12	0	5	0	7	103
Spokane	0	------	0	0	5	1	0	0	0	2	31
Tacoma	0	------	0	111	1	5	0	0	0	0	38
Oregon:											
Portland	0	31	0	13	1	5	0	1	0	3	82
Salem	0	------	------	8	------	0	0	------	0	0	------
California:											
Los Angeles	0	76	1	13	10	27	0	20	0	9	458
Sacramento	3	1	0	2	1	1	0	3	0	0	38
San Francisco	1	2	0	3	8	14	0	8	0	23	189

City reports for week ended Jan. 13, 1940—Continued

State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	1	0	0
Rhode Island:			
Pawtucket	1	0	0
New York:			
New York	0	0	1
Pennsylvania:			
Pittsburgh	2	0	0
Ohio:			
Toledo	1	0	0
Indiana:			
Indianapolis	1	1	0
Michigan:			
Detroit	0	0	1
Missouri:			
St. Joseph	0	1	0
District of Columbia:			
Washington	1	0	0
Kentucky:			
Ashland	0	0	1
Texas:			
Galveston	0	0	1
San Antonio	1	0	0
Washington:			
Seattle	1	0	0
California:			
Los Angeles	0	0	2

Encephalitis, epidemic or lethargic.—Cases: New York, 1; Grand Rapids, 1; Kansas City, 1.
Pellagra.—Cases: Dallas, 1.
Typhus fever.—Cases: Kansas City, 1; Charleston, S. C., 1; Savannah, 3; Tampa, 1; Lake Charles, 1.

FOREIGN REPORTS

CUBA

Habana—Communicable diseases—4 weeks ended December 16, 1939.—During the 4 weeks ended December 16, 1939, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	15	1	Tuberculosis	7	1
Malaria	7	1	Typhoid fever	43	8
Scarlet fever	1				

Provinces—Notifiable diseases—4 weeks ended December 9, 1939.—During the 4 weeks ended December 9, 1939, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camagucy	Oriente	Total
Cancer	2	1	1	3		8	15
Chickenpox				1			1
Diphtheria		12	2	2	1	1	18
Leprosy		1	1			3	5
Malaria	16	17	1	14	9	58	115
Measles						2	2
Poliomyelitis	1			1			2
Scarlet fever		3					3
Tuberculosis	14	25	7	25	15	30	116
Typhoid fever	18	39	4	28	6	29	124
Yaws						1	1

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—A cumulative table giving current information regarding the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS of January 26, 1940, pages 182–186. A similar table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Plague

Thailand.—A report dated January 19, 1940, states that an outbreak of plague has occurred in northern Thailand, where 46 cases with 13 deaths have been reported up to January 13, 1940.

Typhus Fever

France—Basses-Alpes Department—Le Caire.—During the week ended January 13, 1940, 1 case of typhus fever was reported in Le Caire, Basses-Alpes Department, France.

Yellow Fever

Brazil—Espirito Santo State—Domingos Martins.—On December 29, 1939, 2 deaths from the jungle type of yellow fever were reported in Domingos Martins, Espirito Santo State, Brazil.

French Equatorial Africa—Fort Archambault.—On January 12, 1940, 1 case of yellow fever and 1 suspected case of the same disease were reported in Fort Archambault, French Equatorial Africa.